

UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF NEW YORK

THE STATE OF NEW YORK,

Plaintiff,

-vs-

SOLVENT CHEMICAL COMPANY, INC., and
ICC INDUSTRIES, INC.,

83-CV-1401C

Defendants/Third-Party Plaintiffs,

-vs-

RECOCHEM, INC., et al.,

Third-Party Defendants.

APPEARANCES: JAECKLE, FLEISCHMANN & MUGEL, LLP (DENNIS P. HARKAWIK, ESQ.; BRENDA J. JOYCE, ESQ.; and CHARLES D. GREICO, ESQ., of Counsel), Buffalo, New York, for Solvent Chemical Company, Inc.

IRWIN F. ROTH, ESQ., New York, New York, of Counsel.

O'BRIEN & WHITE, P.C. (MARK A. WHITE, ESQ., of Counsel), Boston, Massachusetts, for Recochem and Joseph Kuchar.

On September 15, 16, 23, and 24, 2003, this court conducted a non-jury trial on the issue of the liability of third-party defendants Recochem, Inc. ("Recochem")¹ and its president, Joseph Kuchar, for contribution pursuant to section 113(f)(1) of the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA"),

¹During the time period at issue in this case, Recochem was known as Record Chemical. The company changed its name in 1980 to Recochem. See *State of New York v. Solvent Chemical Co., Inc.*, 218 F. Supp. 2d 319, 323 n. 2 (W.D.N.Y. 2002). Consistent with prior practice, the court will refer to the company herein as Recochem.

42 U.S.C. § 9613(f)(1), in connection with response costs incurred by third-party plaintiffs Solvent Chemical Company, Inc. ("Solvent"), and its parent company, ICC Industries, Inc. ("ICC"), as a result of the investigation and remediation of environmental contamination associated with property located at and near 3163 Buffalo Avenue, Niagara Falls, New York (the "Site"). The court received the parties' post-trial submissions, and heard summations on May 27, 2004. The following constitutes the court's findings of fact and conclusions of law with regard to Recochem's contribution liability, in accordance with Rule 52 of the Federal Rules of Civil Procedure, based on the trial testimony and exhibits, the parties' post-trial submissions and arguments presented at summation, and the court's prior rulings.

BACKGROUND

1. Factual and Procedural Summary

This action was originally brought in 1983 by the State of New York against Solvent, ICC, and several other parties alleged to be potentially responsible under CERCLA § 107(a) for recovery of response costs incurred at the Site. In a series of amended third-party complaints, Solvent subsequently impleaded more than 80 companies and individuals for contribution under CERCLA § 113(f)(1).²

In December 1996, the State issued a Record of Decision ("ROD") identifying a number of hazardous substances in the soil and groundwater at the Site and calling for specific remedial activities to be undertaken there. Among the contaminants identified in

²The vast majority of these third-party claims have been settled, leaving Recochem, Mr. Kuchar, Olin Corporation, General Motors Corporation, and E.I. du Pont de Nemours & Co. as the remaining parties from whom Solvent seeks CERCLA contribution (see Item 1306, Stipulation and Order 12/7/05).

the ROD were various dichlorobenzenes found in the soils and both the overburden and bedrock groundwater, including 1,2-dichlorobenzene (“orthodichlorobenzene” or “ortho,” also referred to as “ODCB”), 1,3-dichlorobenzene (“metadichlorobenzene” or “meta”), and 1,4-dichlorobenzene (“paradichlorobenzene” or “para”)—all listed as hazardous substances pursuant to CERCLA § 101(14). See *State of New York v. Solvent Chemical Co., Inc.*, 218 F. Supp. 2d 319, 322 & n. 1 (W.D.N.Y. 2002). Then, in April 1997, Solvent and the State entered into a Consent Decree, in which Solvent agreed to implement the remedy set forth in the ROD while reserving its right to pursue its third-party contribution action (Ex. 268).³ This Consent Decree was approved by this court on October 8, 1997 (Item 655).

On April 3, 1998, Solvent served and filed its Fifth-Amended Third-Party Complaint (Item 746) impleading Recochem and Mr. Kuchar, along with approximately 40 other generators or suppliers of chlorinated benzene material. Solvent alleged that these “Chlorinated Benzene Waste Generators” sold or provided to Solvent chlorinated benzene material⁴ which could not be used unless it was further processed, resulting in an “arrangement” for the disposal of hazardous substances under CERCLA. Solvent subsequently filed a Sixth-Amended Third-Party Complaint (Ex. 3) adding a claim for “operator” liability under CERCLA based on the allegation that Recochem and Mr. Kuchar actually operated the Solvent plant for a period of time in early 1978 when hazardous substances were disposed of at the Site. Recochem and Mr. Kuchar answered the Fifth-

³References preceded by “Ex.” are to the numbered exhibits submitted by the parties as evidence during the trial.

⁴According to invoice summaries, Solvent purchased over 3 million pounds of chlorinated benzene materials from Recochem between April 1976 and September 1977 (Ex. 479, Bates No. JFM1018942-W).

and Sixth-Amended Third-Party Complaints, generally denying that they ever operated the plant (Ex. 4) and alleging as an affirmative defense that the transactions between Solvent and Recochem involving chlorinated benzene material constituted sale of a valuable and useful product rather than an arrangement for disposal of hazardous wastes regulated by CERCLA (Item 855).

The court entertained the parties' cross-motions for summary judgment on these two issues—*i.e.*, whether the sales of chlorinated benzene material by Recochem to Solvent were arrangements for treatment or disposal under CERCLA § 107(a)(3), and whether Recochem or Mr. Kuchar owned or operated the Site at a time when hazardous substances were disposed of there. In a decision and order dated July 22, 2002, the court denied both motions. The court found genuine issues of material fact as to whether the material shipped to Solvent by Recochem was “product” or “waste.” See *Solvent Chemical*, 218 F. Supp. 2d at 340-46. The court also noted that if it “eventually finds that the sales of material from Recochem to Solvent represented an arrangement for disposal and treatment under CERCLA, then Joseph Kuchar may be personally liable as an arranger as well.” *Id.* at 344. Finally, the court found a question of material fact for trial as to whether Recochem or Mr. Kuchar ever owned or operated the Solvent plant. *Id.* at 349. By subsequent order, the court directed that these issues pertaining to the Recochem defendants' CERCLA liability be tried separately from the other issues in the case (see Item 1230).

As mentioned, the Recochem liability trial took place in September 2003. Solvent presented the expert testimony of Dr. E. Bruce Nauman, Ph.D., as well as the fact

testimony of David Rankin (Vice President of Environmental Affairs of Dover Chemical Company, Inc.) and Gregory DelDuce (Solvent's controller during the relevant period). The Recochem defendants presented the testimony of Mr. Kuchar, Ralph C. Carmichael (Vice President of Recochem), and Bertram M. White (former President of Solvent, currently employed by Recochem as a commissioned salesman).⁵ What follows next is a summary of the testimony and exhibits presented as evidence at the trial which the court finds pertinent to the "useable product/waste" inquiry.

2. Trial Testimony

A. Dr. E. Bruce Nauman, Ph.D.⁶

Dr. Nauman stated at the outset of his testimony his conclusion that "the great majority" of the materials shipped from Recochem to Solvent required further processing to become saleable products (T1 at 17).⁷ This conclusion was based on his review and

⁵By stipulation, the parties also submitted to the court excerpts from the deposition testimony of four other witnesses: Harry Muzyka (a former manager of the Solvent plant), Dick Hoffman (another former plant manager), Eric Beu (former Vice President of Dover Chemical Co.), and Dr. John Farber (Chairman of the Board of ICC) (Items 1261 and 1262).

⁶Dr. Nauman is a Professor of Chemical Engineering at Rensselaer Polytechnic Institute in Troy, New York, engaged by Solvent as an expert in this case to examine and discuss the nature of the chlorinated benzene materials exchanged between Recochem and Solvent, and to determine how these materials fit into commerce during the relevant time period. In its summary judgment ruling, the court addressed the Recochem defendants' objections to Solvent's designation of Dr. Nauman as an expert witness, finding that Dr. Nauman's knowledge, experience, training, and education rendered him sufficiently qualified as an expert to offer his opinion regarding the product-versus-waste controversy in this case, that his testimony would be relevant, reliable, and helpful, and that his proffered testimony satisfied the factors set forth in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993). The Recochem defendants renewed their objections at trial, and have once again moved to strike Dr. Nauman's testimony (see Items 1250 and 1293). As indicated by this court's September 17, 2004 order (Item 1302), this motion is denied for the reasons discussed at length in the summary judgment ruling. See *Solvent Chemical*, 218 F. Supp. 2d at 331-35.

⁷References preceded by "T1" are to Volume I of the trial transcript, entered on the court's docket as Item 1253.

analysis of the deposition testimony of Solvent and Recochem employees, the operating records of the two companies, sales documents, customs declarations, control statements, and shipment records. He also reviewed pricing information and process descriptions available in the open literature (T1 at 15-18).

Dr. Nauman explained the process for making chlorobenzene by the direct chlorination route, which was the process most commonly used by chlorobenzene producers during the relevant time period. The process started with benzene and chlorine being fed to reactors, and ultimately resulted in the production of the three marketable grades of chlorinated benzene products of primary interest in this litigation: ortho, para, and meta. According to Dr. Nauman, the process yielded roughly 50% ortho and 50% para, and less than 1% meta. During the relevant time period, para was the principal product, marketed for use as mothballs and as a chemical reactant for making plastics. Ortho was used as a chemical intermediate for making solvents, degreasers, and deodorants. Dr. Nauman found no established use for meta (T1 at 18-23).

As explained by Dr. Nauman, Recochem's process began with an external source of mixed chlorobenzene isomers, rather than with separate streams of benzene and chlorine. The mixture was sent through a crystallizer, where the para formed crystals and was separated from the mixed stream. The resulting "mother liquor" was then run through a centrifuge, where high-purity para was recovered. The remaining mother liquor, which contained some residual para along with whatever ortho and meta was present to begin with, was sent to a distillation column to remove the heavy contaminants and as much meta as possible. The distillation column was capable of producing 70% ortho (T1 at 24-27).

Exhibit 97 is a record of "Chemical Refineries⁸ Shipments Received," showing the results of laboratory testing performed on various batches of materials sent to Solvent by Recochem between January and October 1976. The materials are listed as "mono" (monochlorobenzene), "meta," "para," "ortho," and "tri's" (trichlorobenzene). Dr. Nauman stated that all of these materials required recovery or reformulation before they could be sold as standard items of commerce. He testified that the industrial acceptance specifications for technical ("tech") grade ortho requires a minimum of 80% ortho content, with no more than 2% meta and tri's, and the remaining 18% to 20% para. Based on these specifications, even in the few instances where the ortho content of the shipment was over 80%,⁹ the materials sent by Recochem to Solvent during this period had an excessive amount of meta and/or tri's. According to Dr. Nauman, none of these materials constituted saleable product without further processing (T1 at 27-32).

Exhibit 90 is an internal Solvent memorandum from John Farber to Bertram White, dated September 3, 1976, regarding "ortho streams from Kuchar." This memorandum indicates that Solvent had accepted four thousand gallons of material from Recochem without conducting quality control analysis, and when analyzed it was found to contain an unacceptable level of meta. Dr. Farber suggested that Mr. White "protest strongly with Kuchar, as he is to return to us only the ortho originating from our streams and not blend in somebody else's junk" (Ex. 90). According to Dr. Nauman, this transaction refers to materials which were sent by Recochem to Solvent under a "tolling agreement" (explained

⁸Chemical Refineries was at the time a wholly owned subsidiary of Recochem (T3 at 89).

⁹Specifically, only three of the twenty-four shipments listed on Exhibit 97 reported an ortho content of over 80%.

at further length later in his testimony), and which contained “far too much meta” (T1 at 33-35).

Exhibit 116 is a letter from Joseph Kuchar (Recochem) to Bertram White (Solvent), dated December 22, 1976, in which Kuchar advises White that a recent shipment of material from Solvent to Recochem “containing 87% para[,] 4½% Trichlorobenzene[,] and 4% Meta and 3½% Ortho . . . is of no interest to us as long as it has the 4% Meta which we cannot remove by economical distillation” (Ex. 116). According to Dr. Nauman, this letter indicates Recochem was aware that high meta content made the materials “unuseful” (T1 at 36).

Exhibit 83 is a Solvent record depicting a script chart recording of a gas chromatograph analysis of a shipment of material from Recochem. Dr. Nauman stated that he reviewed a number of these gas chromatograph analysis reports in preparation for his expert testimony. This particular report pertained to a shipment in July 1976, and matched the shipment analysis numbers reported on Exhibit 97. The report shows that the material contained 60.4% ortho, 11.6% meta, and a combined meta/para content of 35.1%. The material was “cloudy,” with a color reading of between 35 - 40, which Dr. Nauman stated was outside the acceptable range established by the American Public Health Association (“APHA”) reference standards. According to Dr. Nauman, the APHA specification for saleable tech ortho was 25 or less. These readings indicated to Dr. Nauman that this material was not saleable as tech ortho. In fact, the sample was originally designated on the chart as “tech ortho,” but “tech” had been crossed off (T1 at 36-41).

Exhibit 70 is a Solvent Chemical form reporting the readings from a gas chromatograph analysis chart for a shipment from Recochem dated April 20, 1976. The report indicates that the material contained 10.4% meta, 17.2% para, and 69.9% ortho. It also showed a yellow color, which Dr. Nauman explained indicated that it had failed the APHA color specification test. According to Dr. Nauman, in order to make this material a saleable tech ortho product, it would need to be distilled twice. The first distillation would remove the para, meta, and monochlorobenzenes as overhead streams (which would be chlorinated and redistilled to make refined trichlorobenzenes), and the bottom product would be distilled again to produce an overhead stream of saleable orthodichlorobenzene. The bottom product from the second distillation would be disposed of (T1 at 41-43).

Exhibit 81 is another gas chromatograph chart which was reviewed by Dr. Nauman. It indicates that a June 1976 shipment of Recochem material contained 59.9% ortho, 23.2% para, and 12.5% meta. The material was cloudy but had an APHA reading of 10-20 after filtering (T1 at 43-44).

Exhibit 49 is a letter from Mr. Kuchar to Mr. White dated May 26, 1975, in which Kuchar advised that Recochem was taking a "debit note" from Solvent for more than \$12,000 because material received in two recent shipments was too dark in color. According to Dr. Nauman, this communication shows that the color of dichlorobenzene product was important to those in the chemical industry (T1 at 44-46).

Exhibit 8 is a handwritten internal memorandum regarding "rejected low grade orthodichlorobenzene" shipments received by Solvent from Recochem in October and November 1976. The memorandum indicates that these four shipments "do not meet [Solvent's] specifications for color and therefore would cause [Solvent] considerable extra

expense for reprocessing to a saleable product” (Ex. 8; T1 at 46-47). According to Dr. Nauman, some reprocessing would be needed in any event; what this memorandum was concerned with was extra reprocessing due to color (T1 at 47).

Dr. Nauman testified at some length about the information contained in Exhibit 78, which is Solvent’s “Formula File” listing customer requirements for various product specifications. According to Dr. Nauman, there were two orthodichlorobenzene products in commerce at the time: technical grade and high purity. By way of example, the specifications of the DuPont Company for high-purity ortho required a minimum of 98% ortho and “water white liquid” color (Ex. 78, Bates No. JFM1019873-W). The specifications of the Drew Chemical Company for technical grade ortho was an isomer ratio of minimum 80% ortho to maximum 20% para/meta (*id.*, Bates No. JFM1019872-W; T1 at 48-51). Similar requirements were set forth on Solvent’s general customer specification sheet (Ex. 5; T1 at 55-56).

The Formula File also contained specifications from the Cosmopolitan Chemical Company for “N-Grade” ortho, which required a minimum of 50% ortho and was made according to a formula calling for “a blend of Technical grade ortho (80-85%) and $\frac{1}{3}$, $\frac{1}{3}$, $\frac{1}{3}$ material containing between (20-30%) ortho” (*id.*, Bates No. JFM1019870-W). According to Dr. Nauman, while this listing of specifications in the Formula File indicates that N-Grade ortho was a product sold by Solvent, it did not represent substantial sales. He also stated that there were no tech grades listed in the Formula File requiring less than 80% ortho (T1 at 51-53).

The Formula File also contained specifications and formulas for two forms of emulsifiable orthodichlorobenzene—referred to as “Emulsolvent”—which was a product used

to spray on garbage dumps to cut down odors. Both formulas required tech ortho (Ex. 78, Bates Nos. JFM1019928-W and JFM101929-W; T1 at 53-55).

Exhibit 40 is a letter from Mr. White to a potential customer in Brazil advising that Solvent's ortho material was manufactured in technical grade only, and contained 80-85% orthodichlorobenzene (T1 at 57).

Exhibit 56 is an ICC interoffice memorandum, dated October 16, 1975, discussing methods for the reduction of Solvent's chlorinated benzene inventory at the Niagara Falls plant. The memorandum indicates that Solvent had approximately 8 million pounds of material stored in tanks and drums at the plant at the time. The proposed scheme for reducing the inventory involved selling all readily saleable products, including "Technical Ortho 80-85%" and "Emulsified Ortho," and reprocessing the remaining materials by way of distillation and rechlorination. According to Dr. Nauman, this memorandum documents the steps Solvent would take to make "unsalable" chlorinated benzene materials saleable (T1 at 56-59).

Exhibit 166 is a report of Solvent's overall physical inventory for the month of June, 1977. The report lists "Finished Goods," "Work in Process," "Raw Materials," "Sundry," and "Additives" at various locations, including the Niagara Falls plant. According to Dr. Nauman, "Finished Goods" referred to saleable product on hand, including technical grade ortho, emulsified ortho, and 99% ortho. "Work in Process" included "Crude Dichlors," "Ortho/Para," and "90% Ortho" (Ex. 166; T1 at 59-61).

Exhibit 20 is a table prepared by Dr. Nauman listing industry definitions of technical grade orthodichlorobenzene from various suppliers—specifically, Allied Chemical, Dow Chemical, Canadian Industries, Hooker Chemical, PPG, and Monsanto. As set forth in the

supporting documentation (Exs. 21-26), the tech ortho specifications for all of these companies required a minimum 80% orthodichlorobenzene, with the exception of Hooker, which specified a boiling point range consistent with the 80% minimum requirement. Dr. Nauman testified that at no time during his analysis did he see any documentation indicating a specification for tech ortho of less than 80% minimum (T1 at 61-62).

Exhibit 95 is a "Memorandum of Agreement" between Recochem and Solvent dated September 23, 1976. This agreement had two components: (1) a provision for straight sales by Recochem to Solvent of para and ortho, and (2) a "tolling agreement," under which Solvent supplied Recochem with "stream crude dichlorobenzene" which Recochem then processed and returned to Solvent. More specifically, under the straight sales component, Recochem agreed to supply Solvent 300,000 pounds of para at a price of \$0.20/lb., and 850,000 pounds of 70% ortho at a price of \$0.18/lb. Under the tolling agreement, Solvent agreed to supply Recochem 823,000 pounds of stream crude dichlorobenzene, having the following composition: 4.2% mono, 12.6% meta, 37.3% para, 45.2% ortho, and 0.7% tri. Recochem agreed to process this material into para and ortho streams at a price of \$0.08/lb., which would be invoiced by Solvent at \$0.12/lb for customs purposes. Recochem would return 23 - 25% para (after 9% loss allowance), as well as the remaining stream of ortho composed of 66% ortho and unspecified smaller quantities of meta, mono, and para. According to Dr. Nauman, the basic intent of the somewhat complex tolling arrangement was that Solvent would send mixed dichlorobenzene material to Recochem, and Recochem would then strip off useful para material, some of which would be sent back to Solvent along with the remaining ortho/meta/mono materials (T1 at 64-68).

Dr. Nauman also performed a comparative evaluation of the prices Solvent paid for various materials required for its reprocessing business and the prevailing market prices for those materials at the time of purchase, as reflected in the *Chemical Market Reporter*.¹⁰ The *Chemical Market Reporter* is a weekly publication which lists the prices charged by different manufacturers for fungible chemical products (T1 at 62-64). It contains the following introductory disclaimer:

Unless otherwise indicated quotations in this section reflect the list prices prevailing, according to information and belief, on [the particular date] for large lots f.o.b. New York. Chemical quotations reflect list prices of merchant producers accounting for at least 80 percent of annual US production. The listings do not represent bid and asked prices, nor a range over the week. Differences between high and low may be accounted for by differences in quantity, quality or locality. Quotations posted herein do not necessarily reflect prices at which transactions actually may have occurred.

(Ex. 13).

Exhibit 12 is a table prepared by Dr. Nauman based on data obtained from the *Chemical Market Reporter*. It lists "historic prices" on various dates between January 1970 and May 1979 for five chlorobenzene products: MCB (monochlorobenzene), 80% ortho, 98% ortho, para, and 1,2,4 tri. These are the only chlorobenzene products listed in the *Chemical Market Reporter*, although some lower grades of ortho were considered saleable products for use as emulsifiers, deodorizers, or solvents (T1 at 81). On December 27, 1976, the price for MCB was listed at \$0.26 to \$0.29/lb.; the price for 80% ortho was \$0.30 to \$0.33/lb.; the price for 98% ortho was \$0.31 to \$0.34/lb.; the price of para was \$0.22 to \$0.26/lb.; and the price of 1,2,4 tri was \$0.39/lb. (Ex. 12; T1 at 71-73). As explained by Dr.

¹⁰In the mid-1970s (the relevant time period), the publication was known as the *Chemical Marketing Reporter*.

Nauman, these quotations reflected the list prices for tank car quantities, before discounts. They are broadly representative of prices paid in chemical product transactions between chemical companies, but do not necessarily reflect exact market transaction prices (T1 at 74-76). However, Dr. Nauman's comparative analysis indicated that the prices Solvent paid for chemical products during the relevant period, as set forth in its various contracts with other chemical companies (*see, e.g.*, Exs. 84, 248, 278), were consistent with the *Chemical Market Reporter* listings (T1 at 76-80).

Dr. Nauman also testified that while "pure" and "80% tech" were the only grades of ortho listed in the *Chemical Market Reporter*, there were recognized uses for lower grades of ortho in the 1970s. For example, some lower grade ortho material was saleable for use as a solvent and, in an emulsified form, as a deodorizing agent (T1 at 81).

Exhibit 188 is an internal Solvent memorandum dated August 16, 1977 from Ira Lieberman to Bertram White regarding a buildup of inventory for certain products. Listed under the category of "work in progress" is approximately 1.5 million pounds of ortho/para, valued at nearly \$360,000. According to Dr. Nauman, the handwritten parenthetical reference to "Kuchar" indicates that this is material Solvent obtained from Recochem (T1 at 82-83, 86).

Exhibit 262 is an internal Solvent memorandum dated September 1, 1978 from E.R. Beu to J. Liggett addressing Solvent's plan for shutting down the Niagara Falls plant and liquidating the inventory on hand. The memorandum outlines proposed alternatives for dealing with the 1.15 million pounds of ortho/para material attributed to Recochem/Kuchar, which was still in inventory. One alternative called for selling the entire amount to Standard Chlorine. Another suggestion was to blend the materials with the 90% and 95% ortho in

stock to create 1.1 million pounds of tech ortho, which would still leave 600,000 pounds of ortho/para to be distilled or sold at a distressed price (T1 at 84-85). As of November 22, 1978, 1.057 million pounds of ortho/para remained in inventory (Ex. 264). According to Dr. Nauman, this entire lot was eventually sold to a single company at \$0.10/lb. (T1 at 88).

In summary, Dr. Nauman stated his conclusion based on his analysis of the evidence in the record that some of the orthodichlorobenzene material received by Solvent for use in its chemical reprocessing business was obtained from Recochem at prices substantially below market value for technical grade ortho. The material contained high levels of contaminants, particularly metadichlorobenzene, and some of the shipments contained off-color or cloudy material. Several shipments were too low in ortho content. In Dr. Nauman's opinion, this material needed reprocessing before it could become a saleable product (T1 at 88-89).

On cross-examination, Dr. Nauman testified that although the generally recognized standard for tech ortho placed limits on "nonpara" content, none of the chemical manufacturers' specification sheets referred to a 2% meta limit. Certain manufacturers also allowed a higher APHA rating than the 20 - 25 range. He reiterated his opinion that none of the shipments listed on Exhibit 97 (received by Solvent from Recochem between January and October 1976) contained saleable tech ortho. This included the material consisting of more than 80% ortho, which Dr. Nauman found to be not saleable because it also contained more than 2% combined meta and tri's (T1 at 118-31).

Recochem's counsel questioned Dr. Nauman about the specification sheets contained in Solvent's Formula File (Ex. 78). Although DuPont's specification sheet (Bates No. JFM1019873-W) called for 98% ortho, there was nothing in the documents reviewed

by Dr. Nauman to indicate that Solvent actually manufactured or sold 98% ortho. Along with Cosmopolitan Chemical, which required 50% ortho content (Bates No. JFM1019870-W), the following companies required less than 80% ortho: Utility Chemical, which also required 50% (Bates No. JFM1019920-W); Milwaukee Solvent, 70% (Bates No. JFM1019892-W); Neville Chemical, 70% (Bates No. JFM1019896-W); Oakite Products, 70% (Bates No. JFM1019902-W); Southland Solvents, 70% (Bates No. JFM1019909-W); and Warren Chemical, 70% (Bates No. JFM1019922-W). In addition, most of the specification sheets indicated that 80% ortho could be made by blending equal amounts of 60% - 65% ortho with high-purity ortho (T1 at 132-39).

Dr. Nauman agreed that Solvent's physical inventory report for June 1977 (Ex. 166) lists no less than ten products containing different grades of ortho (T1 at 140-41).

Dr. Nauman admitted that Hooker Chemical's specifications for ortho requiring a boiling point range of 179.5 centigrade, which he testified on direct was consistent with the 80% minimum requirement for tech ortho, was also consistent with 98% Ortho (T1 at 142-43).

Dr. Nauman testified that the para sold to Solvent by Recochem at \$0.20/lb., pursuant to the September 23, 1977 contract (Ex. 95), was a "modest discount" from the historic price of para listed in the *Chemical Market Reporter* at \$0.22 to \$0.26/lb. (Ex. 12). According to Dr. Nauman, this para is in addition to, and distinct from, the 23% - 25% para returned to Solvent after processing the crude dichlor stream. He was not aware that the para received from Recochem was shipped to ICC's customers in Japan (T1 at 143-45).

Dr. Nauman stated that he had reviewed documents indicating sales of tech ortho in the 1970s for less than \$0.25/lb. Exhibit 479 is a Solvent/ICC interoffice memorandum

dated December 2, 1977, which indicates outstanding invoices due from Recochem for two shipments of tech ortho at \$0.18/lb., and one shipment at \$0.17/lb. According to Dr. Nauman, this was an accounting mistake (T1 at 150-53).

Dr. Nauman agreed that while the Formula File, the manufacturers' specification sheets, and the *Chemical Market Reporter* listed only 80% tech ortho and 98% pure ortho, lower grade ortho (50% - 70%) could be sold as marketable product for certain applications. He also agreed that 80% ortho was used for many purposes, including as a reaction solvent for further processing of chemicals such as toluene diisocyanate ("TDI") (T1 at 155-65).

During Dr. Nauman's cross-examination, Recochem's counsel introduced several documents suggesting that Solvent bought and sold orthodichlorobenzene products with an ortho content of less than 80%. For example, Exhibit 320 is an undated table listing weight, cost, quantity, and other characteristics of various Solvent products. The table indicates the same "Unit Standard Cost" (\$0.24/lb.) for "Ortho 70%—Record Chem." and "Ortho 99%—ICC Ind." (T2 at 2-3).¹¹

Exhibit 587 is a chart prepared by Recochem's counsel entitled "Ortho Received from Record (1/1/76 - 11/30/76)." According to counsel, this chart summarizes information contained on Exhibit 1 ("Recochem's 'Straight Sales' of Mixed Ortho-Dichlorobenzene Shipments"), Exhibit 306 ("Ortho Received from Record Chemical"), and Exhibit 479 ("Ortho Purchased from Record Chemical through ICC Sales"). The chart indicates "Price/Pound" for each shipment, calculated by dividing the invoice amount by the

¹¹References preceded by "T2" are to Volume II of the trial transcript, entered on the court's docket as Item 1254.

shipment weight. By way of example, the chart indicates that a shipment dated April 15, 1976 contained 191,860 pounds of 69.9% ortho material with a yellow color, for which Solvent paid \$49,226, which works out to \$0.25/lb. The shipment dated January 20, 1976 contained 39,000 pounds of 80.5% ortho material with a "water white" color, for which Solvent paid \$10,696, which works out to \$0.27/lb. The *Chemical Market Reporter* price range for tech ortho during that time was \$0.30 to \$0.33/lb. which, when discounted at a rate of ten percent (the standard discount for chemical distributors), yields a price of approximately \$0.27/lb. (T2 at 4-26).

Exhibit 329 is an invoice (with an undecipherable date) for 18,000 pounds of tech ortho at \$0.16/lb, sold to Milwaukee Solvents. The Formula File contains Milwaukee Solvents' specifications for both 80% tech ortho (Ex. 78, Bates No. JFM1019891-W) and 70% ortho (*id.*, Bates No. JFM1019892-W; T2 at 27- 29).

Exhibit 336 is an inventory summary dated June 30, 1975, indicating that the unit cost for emulsified ortho, tech ortho, and 99% ortho was the same (\$0.265/lb.). Exhibit 348 is a Weekly Inventory Activity Report for the week of May 16 - 22, 1978, indicating an "in-house transfer" to ICC Western Hemisphere of 70% ortho. Exhibit 355 is a letter from the State Chemical Manufacturing Company requesting information about the product metadichlorobenzene. Exhibit 357 is a copy of handwritten notes indicating an invoice for $\frac{1}{3}$, $\frac{1}{3}$, $\frac{1}{3}$ material for use as a "meta source." According to Dr. Nauman, the market for meta at that time was very limited (T2 at 31).

Exhibit 371 is a list entitled "Chlorobenzene Sales and Revenue Calendar Year 1973," which indicates that Solvent sold three different grades of ortho material during 1972¹² –85%, 75%, and 65%, resulting in revenues of over \$187,000 (T2 at 32-33).

Exhibit 385 is a list of Solvent's material suppliers and unit prices dated May 18, 1978. The list indicates that Solvent obtained tech ortho from Monsanto at the cost of \$0.22/lb., as compared to the *Chemical Market Reporter* price of \$0.30 to \$0.33/lb. (T2 at 33-34).

Exhibit 414 is an invoice dated December 21, 1974 from ICC Solvent Chemical Sales Corporation in New York City indicating a sale of ortho 75% to Solvent Chemical Sales Corp. in Malden, Massachusetts (T2 at 34-35).

Exhibit 444 is a memorandum from ICC New York dated June 7, 1977 regarding State Chemical Company's interest in "lower priced Ortho-Rich CB's." The memorandum lists four products being offered for sale: (A) $\frac{1}{3}$ ortho, $\frac{1}{3}$ meta, and $\frac{1}{3}$ para, at \$0.20 (delivered); (B) 5% mono, 14% meta, 59% para, 18% ortho, and 3% tri, at \$0.20; (C) 10% meta, 20% para, and 70% ortho, at \$0.275; and (D) 30% tri, 20 - 30% para, and 34 - 50% ortho, at \$0.25. According to Dr. Nauman, this memorandum is an internal document suggesting an offer of sale, and does not represent a transaction involving saleable products (T2 at 35-37).

Exhibit 420 is a memorandum sent to Joseph Kuchar confirming an offer of sale to Recochem of 500 tons of chlorinated benzene material in nine shipments containing various percentages of mono, meta, para, ortho, and tri's. The ortho content per shipment

¹²According to Dr. Nauman, since the 1972 sales predate Solvent's move to Niagara Falls, this record apparently refers to Solvent's activities at its Malden, MA plant (T2 at 33).

ranges from 24.2% to 53%. According to Dr. Nauman, Solvent was offering these materials for sale to Recochem because of their rich para content (T2 at 37-38).

Various other documents were presented as exhibits indicating that Solvent sold chlorinated benzene materials containing less than 80% ortho to several chemical companies during the 1970s (see, e.g., Exs. 433, 439, 441, 448, 458, 568; T2 at 41-47).

B. Ralph C. Carmichael¹³

To counter Dr. Nauman's testimony, Recochem offered the testimony of Ralph C. Carmichael, Bertram White, and Joseph Kuchar. Mr. Carmichael is Senior Vice President of Recochem's International and Industrial Sales Division. He testified that Recochem's business currently is divided into two divisions: the consumer division, which operates four plants across Canada where solvents, coolants, and other household chemicals are manufactured; and the industrial chemical division, which operates a plant in Napierville, Quebec and plants in Belgium and Australia. The Napierville plant manufactures chlorinated benzenes and naphthalene (T3 at 6-7).¹⁴

In the 1970s, Recochem sold chlorinated benzenes in Canada, the United States, and several other countries. The two main products were paradichlorobenzene and orthodichlorobenzene. According to Mr. Carmichael, Recochem sold ortho material containing anywhere from 50% ortho content to 99% ortho content (T3 at 7-9).

¹³Mr. Carmichael's educational background includes a four-year bachelor of science degree from Queens University in Kingston, Ontario, with a concentration in chemistry. He was employed by Recochem in June 1973, and has worked there ever since. He began as logistics coordinator, reporting directly to Mr. Kuchar. His duties included coordinating shipments of incoming raw materials, production planning, and coordination of deliveries of outgoing products (T3 at 4-6).

¹⁴References preceded by "T3" are to Volume III of the trial transcript, entered on the court's docket as Item 1259.

Mr. Carmichael testified that in the early 1970s, Recochem was purchasing high-purity para raw materials, with paradichlorobenzene content ranging from 94% to pure para. Recochem's equipment was capable of upgrading the 94% para to 99.5%. The company also sold ortho, which it imported from various sources in the United States, Australia, and Europe. In 1973, when the Arab oil crisis hit, these raw materials became unavailable, and Recochem had to adjust to the market conditions to stay in business. The only raw materials available in reasonable quantities had a much lower para content and contained other chlorinated benzenes such as ortho, meta, and to a lesser extent trichlorobenzene. In order to process these lower grade materials, Recochem modified its Napierville plant by installing new crystallizers to purify the para and by modifying the existing distillation columns in an attempt to purify the ortho. The result was that instead of importing orthodichlorobenzene into Canada, Recochem was able to sell its own ortho product in the Canadian market (T3 at 9-10).

Mr. Carmichael testified that paradichlorobenzene was traditionally used in the Canadian market to make deodorizer blocks, urinal cakes, air fresheners, and moth killers. Orthodichlorobenzene was used to make carbon-removing solvents and degreasers for cleaning automotive engines, industrial machinery, and ships' tanks. Recochem also made a grade of ortho with emulsifiers added to it for use as a deodorizer for portable toilets and garbage dumps. According to Mr. Carmichael, the Canadian market for these solvents and emulsifiers did not require high-purity ortho with greater than 80% ortho content. The high-purity ortho was used as a chemical intermediate to make "agro" products, and the Canadian market for agro chemicals was not large enough to support a Canadian producer (T3 at 11-13, 15).

Mr. Carmichael testified that at the time Recochem began manufacturing its own ortho, it was the only ortho producer in Canada. Canadian Industries Ltd. imported para and ortho materials from its parent company in the United Kingdom and distributed those products in Canada. Canadian Industries was not an ortho producer. When Recochem began producing para and ortho from lower grade raw materials, it impacted Canadian Industries' importation and distribution business, and Recochem eventually made an arrangement for Canadian Industries to become its distributor of chlorinated benzenes in Canada. Allied Chemical Canada specified 80% ortho, which it received from its affiliated plant in Syracuse, New York, for use in the control and recovery of phosgene from the production of toluene diisocyanate at its plant in Corunna, Ontario (T3 at 13-16).

Mr. Carmichael testified that because its Canadian market was strictly solvents, and because it was not able to make higher purity ortho on a consistent basis, Recochem had to work with its customers to develop different formulated products. This resulted in the sale of ortho in various grades containing anywhere from 50% to 80% ortho content. According to Mr. Carmichael, the issue of the 80% minimum requirement for marketable ortho has to do with the freezing point of an 80/20 ortho/para solution, which is minus 16 degrees Celsius. The lower the ortho content, the higher the freezing point—for example, the freezing point for a 75/25 ortho/para solution is minus 4 degrees Celsius. A 70/30 mix has a freezing point of plus 4 degrees Celsius. In a solvent application, the risk is that the para will freeze and begin to crystallize out of the solution. Recochem was able to keep the freezing point of its products low by substituting metadichlorobenzene, which has a much lower freezing point than para. Mr. Carmichael testified that there was a definite market for pure metadichlorobenzene in the 1970s, which was used in the production of

a fungicide called propiconazol. Pure meta was produced in Europe by several companies and is still being produced today in Europe, Japan, and China (T3 at 17-21).

Exhibit 458 is a contract between Recochem and Solvent dated February 22, 1971, under which Solvent agreed to sell Recochem certain amounts of "dichlorobenzene and orthodichlorobenzene, still bottoms" over a period of three years and for a price of \$0.079/lb. According to Mr. Carmichael, although this contract predates Solvent's move to Niagara Falls, it involves the same kind of product that Recochem bought from Solvent's Niagara facility (T3 at 24-25).

Mr. Carmichael testified at some length as to his understanding of the September 23, 1976 contract between Recochem and Solvent (Ex. 95). According to Mr. Carmichael, Solvent approached Recochem with the proposal to supply Solvent with paradichlorobenzene for a commitment Solvent/ICC had made to a customer in Japan. The first part of the contract was an arrangement to sell Solvent 300,000 pounds of the para material. The second part of the contract involved providing Solvent 850,000 pounds of 70% ortho. The third part of the contract involved the so-called "tolling agreement," under which Solvent agreed to supply Recochem with 823,000 pounds of raw materials having the specified composition of 4.2% mono, 12.6% meta, 37.3% para, 45.2% ortho, and 0.7% tri. This material would then be processed by Recochem at its Napierville plant to obtain pure (99.9%) paradichlorobenzene, which would be sold back to Solvent. The remaining stream of 66% ortho (with some remainder quantities of meta, mono, and para) would be shipped back to Solvent. The reference to "23/25% Paradichlorobenzene" being returned to Solvent meant that Recochem would only be able to extract 23% to 25% of the para from the incoming raw materials, which had a low para content (37.3%) to begin with.

The para material returned to Solvent was pure para. There was no specification for the meta content of the material to be sent back to Solvent (T3 at 26-29; 32-34).

Mr. Carmichael pointed out that none of the specification sheets from the other chemical companies limited the meta content of saleable ortho to 2% meta. According to Mr. Carmichael, meta is a good solvent, having the same chemical structure as orthodichlorobenzene. For applications in the Canadian market, an orthodichlorobenzene mixture with greater than 2% meta was still a saleable product (T3 at 30-31).

Mr. Carmichael also testified at some length about Recochem's dichlorobenzene manufacturing process in the 1970s, as depicted on the flow diagram (Ex. 10). The process began with chlorinated benzene raw materials, which were purchased from various suppliers in the United States and overseas (Recochem did not chlorinate benzenes at the Napierville site). The raw material was first sent through a crystallizer, where the para was crystallized out and then sent through a centrifuge to separate solids from liquids. The mother liquor, which was the liquid portion that came out of the centrifuge, was then sent to the ortho distillation column, where the saleable ortho was generated as the overhead product and the dark-colored material was collected at the bottom (T3 at 34-35).

Mr. Carmichael testified that the dark-colored material was used by Recochem as a component of emulsified orthodichlorobenzene, an ortho mixture to which emulsifiers (such as fatty acids) and other chemical compounds are added to allow the ortho to form a homogeneous solution when mixed with water. This product was used to rinse away solvents and degreasers from machinery. According to Mr. Carmichael, there is no purity requirement for the ortho used for this product. Recochem made their emulsified ortho product with orthodichlorobenzene ranging from 50% to 80% ortho content. In addition,

because there is no color specification, dark-colored ortho material could be used for this purpose (T3 at 35-36).

Mr. Carmichael testified that problems developed with the September 23, 1976 straight sale/tolling contract based on quantity and quality issues on both sides. The original terms were never fulfilled, and the contract was eventually canceled (T3 at 36-37).

Contrary to Dr. Nauman's testimony that tech ortho was required to have an 80% concentration of orthodichlorobenzene, Mr. Carmichael testified that tech ortho could be anywhere from a minimum of 50% to 99%. Content of meta, para, and other components depends on the application that the tech ortho was to be used for. He has never seen a document that defines tech ortho as 80% (T3 at 37-38).

Mr. Carmichael disagreed with Dr. Nauman's testimony that a dichlorobenzene manufacturer using Recochem's process could not regulate the split between para and ortho, the two major isomers. According to Mr. Carmichael, the manufacturer could vary the conditions of the process to favor the production of either para or ortho. He also disagreed with Dr. Nauman's testimony regarding the relative percentages of ortho and para used in formulating degreasers, as well as his testimony about the APHA color rating requirements for marketability (T3 at 39-41).

Page 872 of Solvent's Formula File (Ex. 78, Bates No. JFM 1019872-W) is Drew Chemical's formula for tech ortho. Recochem also sold products to Drew Chemical. Drew required an isomer ratio of 80% minimum ortho to 20% maximum para/meta. Dr. Nauman testified that this could not be read to allow for 20% meta, since the accepted standard for tech ortho required a maximum of 2% meta. However, Mr. Carmichael stated that

substitution of meta for para does not change the solvent properties of the mixture (T3 at 41-43).

Mr. Carmichael has been familiar with the *Chemical Market Reporter* since he started with Recochem in 1973. He described it as a good weekly journal that reports on what is happening in the chemical industry, such as company takeovers and new product development. However, according to Mr. Carmichael, the prices for chemicals listed at the back of the magazine are not relied upon by the chemical industry as accurate reflections of market price. This is because the listings do not take into consideration several factors relating to the commercial arrangements between sellers and buyers, such as arrangements between co-producers, product shortages, quick changes in market conditions, plant problems, discounts, and spot (*i.e.*, immediate) markets. In addition, the *Chemical Market Reporter* deals strictly with the market in the United States. There is no reference to the Canadian, Japanese, or European markets, and Recochem has never been contacted by the *Reporter* for its prices (T3 at 43-46).

Exhibit 97 is Solvent's list of chemical shipments received from Recochem between January and October 1976. Mr. Carmichael disagreed with Dr. Nauman's testimony that none of the shipments contained saleable materials. According to Mr. Carmichael, all of the shipments contain mixtures with an ortho content of over 50%, typical of what Recochem was selling in the Canadian market for use as a solvent without the need for reprocessing. Mr. Carmichael stated that Recochem was able to sell all of the dichlorobenzene it produced. He explained that as long as the dichlorobenzene product was suitable for use as a solvent, it made no difference whether the ortho content was 80% or 50%. The specification sheets referred to by Dr. Nauman as requiring 80% ortho were

from producers of toluene diisocyanate, which requires the pure product for use as a chemical intermediate (T3 at 48-55).

Mr. Carmichael testified that Recochem did not have to dispose of product during the 1970s, but during the late 1980s and early 1990s, environmental controls diminished the market for chlorinated benzenes used as solvents. Eventually the market for orthodichlorobenzene disappeared, and Recochem had to call in a disposal company to take away its remaining product for incineration (T3 at 56-57).

On cross-examination, Mr. Carmichael was asked about Exhibit 297, which is a record of Recochem's cumulative total of ortho products shipped from the Napierville plant in 1976 indicating shipment amounts only for "Ortho 80-85%" and "Emulsifiable Ortho." Exhibit 298 is a record of Recochem's cumulative total of ortho products shipped from the Napierville plant in 1977, indicating shipment amounts for "Ortho 80-85%," "Emulsifiable Ortho," and "Ortho-Grade B." Mr. Carmichael did not know what "Ortho-Grade B" was. He was not personally involved in the preparation of these documents (T3 at 80-87). He testified on redirect examination that since Recochem was not capable of making 80 - 85% ortho, the nomenclature on these plant documents must have been an administrative carry-over from the years prior to 1973 when Recochem obtained its ortho from other suppliers (T3 at 137-38).

On redirect examination, Mr. Carmichael testified that he had seen documentation showing Solvent's sales of tech ortho to Recochem at \$0.17 to \$0.18/lb., which indicated products with less than 80% ortho content (Ex. 479; T3 at 129-31). Several companies' specification sheets from Solvent's Formula File indicated requirements of 70% or less

ortho content, and several of Recochem's customers purchased ortho material with less than 80% ortho content for use in solvent applications (T3 at 135-36).

Exhibit 97, showing the composition of mixed chlorinated benzene shipments received by Solvent from Recochem (through its subsidiary Chemical Refineries) between January and October 1976, indicates that the meta content of these materials was in nearly every case below the maximum of 12.6% specified in the September 23, 1976 contract for shipments of crude dichlorobenzenes from Solvent to Recochem (T3 at 130-40).

C. Bertram White

Mr. White is President of BMW Chemicals, Inc. He currently sells Napthalene for Recochem on a commission basis. He has been in the chemical business since 1946. He started his own company, and after a few years he went to work for the Sobin Chemical Company. While he was with Sobin, he sold chlorine to Solvent, which used chlorine in the manufacture of chlorinated benzenes at its facility located in Malden, Massachusetts. Mr. White became familiar with Solvent's owner, and upon learning of the owner's plans to retire, Mr. White assembled some investors and acquaintances and purchased Solvent some time in the late 1960s. Mr. White became president of the company, and his duties included supervision of sales and purchasing raw materials. At the time, Solvent's business was making chlorinated benzenes, particularly paradichlorobenzene (T3 at 153-56).

When a fire at the Malden facility resulted in an eminent domain taking of the property, Solvent purchased the facility on Buffalo Avenue in Niagara Falls which had previously been used as a chemical warfare plant. In 1973, Solvent was sold to ICC

Industries. Mr. White moved to New York City and became ICC's Vice President for domestic sales, while remaining President of Solvent (T3 at 156-60).

Solvent's business in Niagara Falls involved buying various streams of high-purity orthodichlorobenzene and trichlorobenzene and marketing it. The ortho was also blended to make lower grade ortho. According to Mr. White, Solvent's definition of technical grade ortho was ortho content above 50%, and orthodichlorobenzene with an ortho content of less than 80% was a saleable product for which there were many uses—indeed, it was the very product that Solvent sold. It was essentially used as a solvent, emulsified and used for odor control, or used as a cleaning compound. One customer (the Curran Chemical Co.), for example, used it to make an automotive carburetor cleaner called "Gunk" (T3 at 161-63).

Mr. White testified that Solvent obtained its raw materials from major chemical producers who only manufactured two high-purity grades of ortho—80% and 98/99%. According to Mr. White, these companies standardized their manufacturing processes to produce large quantities of this material on a continual basis. They sold their remaining product to Solvent and other smaller manufacturers (T3 at 163-64).

As described by Mr. White, the circumstances surrounding the September 23, 1976 contract arose out of ICC's need for paradichlorobenzene to sell to a customer in Japan. The material was in short supply at the time. Solvent arranged to buy 300,000 pounds of para from Recochem, but this did not satisfy its total requirements. So they arranged to ship 823,000 pounds of stream crude dichlorobenzene to Recochem so that the para could be removed and returned to Solvent, along with the remaining stream containing 66% ortho. In effect, Solvent would send 45% ortho and get 66% ortho in return. The para was

sent to Japan, and the ortho was either blended or sold as is (T3 at 164-67). The contract was eventually canceled when both sides became dissatisfied with the quality of the product (T3 at 170-71).

The Formula File (Ex. 78) is a book of product specifications for companies to whom Solvent actually sold various products. Trichlorobenzene was one such product, and several Formula File entries listed trichlorobenzene as a product purchased from Solvent. It was used as a “dye carrier” for application to natural fibers to allow greater absorption of dyes. Mr. White was unaware of any customer who used trichlorobenzene as a degreaser due to its price. He testified that Solvent sold 50% ortho to Cosmopolitan Chemical Company and Utility Chemical Company, and 70% ortho to Milwaukee Solvent, Neville Chemical Company, Warren Chemical Company, Oakite Chemical, and Southland Solvent (T3 at 168-74).

Mr. White explained that it was a courtesy in the industry to give a “coproducer discount” when one chemical manufacturer sold products to another. By way of example, Exhibit 310 is an internal ICC memorandum dated October 25, 1977, outlining a proposal from a salesman at Dow Chemical Company for supplying quantities of various products to Solvent over a three-year period from 1978 to 1980. Among the products listed were “ODCB High Purity” at a price ranging from \$0.225/lb. to \$0.245/lb. According to the *Chemical Market Reporter*, during that three-year period the market price of high-purity ortho ranged from \$0.31/lb. to \$0.37/lb. (T3 at 176-81).

Mr. White testified that he was familiar with the *Chemical Market Reporter* and has read it for many years as a source of news and information about the chemical industry, but never relied upon it as a source of accurate market prices. According to Mr. White, the

price listings in the *Chemical Market Reporter* are unreliable because they do not take into account variables such as discounts or fluctuating supply and demand (T3 at 181-83).

Mr. White testified that he was involved in the proposed sale of Solvent to Recochem. According to Mr. White, Recochem did not operate the plant, but rather directed Solvent to operate the plant with Solvent's personnel in order to see what the plant could do. Recochem never paid Solvent's employees or the plant's operating expenses, and Mr. White never saw a signed document consummating the sale. Solvent's assets were eventually sold to another purchaser (T4 at 12-19).¹⁵

On cross-examination, Mr. White was questioned about Exhibit 189, which is a memorandum dated August 18, 1977 from Mr. White to Ira Lieberman, Vice President of Finance at ICC. The memorandum discusses various alternatives for disposing of Solvent's inventory, and indicates that the "big problem" was approximately 1.5 million pounds of ortho/para material, "originally purchased to blend with a higher purity Ortho which should then give us a saleable technical material . . ." (Ex. 189). According to Mr. White, this suggested that the ortho/para material on hand at the time the memorandum was written was not saleable as is (T4 at 21-23).

Mr. White testified that Solvent had distillation and chemical blending capabilities at the Niagara Falls facility, and bought and sold 80% ortho on occasion. He could not recall whether Solvent used these materials and capabilities to take lower purity ortho and raise it up to 80% purity (T4 at 26-27).

¹⁵References preceded by "T4" are to Volume IV of the trial transcript, entered on the court's docket as Item 1260.

Exhibit 308 is a letter dated January 1, 1969 from PPG Industries to Solvent, indicating PPG's allowance of a coproducer discount of 5% on purchases of two grades of ortho material.

Mr. White testified that Solvent never made a profit at the Niagara Falls facility, but its parent ICC profited by buying material from Solvent at a low price and reselling or exporting it at a substantially higher price. Exhibit 288 is a September 14, 1977 memorandum from Ira Lieberman to John Farber, which indicates that Solvent was "draining ICC," leaving "no alternative but to take [a] tax writeoff and try to develop a deal with Kuchar . . . or with other interested parties . . ." (Ex. 288, p. 2). Mr. White could not tell from this memorandum whether Mr. Lieberman took into account the profits ICC generated by its resale of low-priced Solvent material (T4 at 28-30).

Exhibit 287 is an internal ICC memorandum dated January 4, 1980, summarizing Solvent's payable and receivable accounts after the closure and sale of the Niagara Falls facility. This memorandum indicates that much of the chlorinated benzene material remaining at the time the plant was closed was shipped to Dover Chemical for reprocessing or sale, but Dover was not able to reprocess or sell these materials. Mr. White did not know whether Dover ultimately had to bear the cost of disposal of these materials, estimated at \$56,000 (T4 at 37-39).

Mr. White testified that there were markets during the 1970s for any grade of orthodichlorobenzene over 50%, which Solvent designated as technical grade ortho. Solvent also designated as "high purity" ortho over 99% (T4 at 39-40). In several documents, Solvent referred to technical grade ortho as material having an ortho content of 80% to 85% (see, e.g., Exs. 35, 40, 61, 79, 564).

Exhibit 105 is a letter dated November 18, 1976, from Gregory Del Duce to ICC employee Fred Baruth, indicating that under the September 1976 contract, Recochem supplied Solvent 850,000 pounds of 70% ortho at \$0.18/lb, to be blended with 99% ortho to make "tech grade" at \$0.265/lb. The letter also indicates that approximately 80% of the material received from Recochem was "off spec and cannot be blended to meet customer requirements because of high color" (Ex. 105, p. 2). According to Mr. White, this required Solvent to process the material by washing out the color with caustic soda (T4 at 48-50).

Exhibit 42 is a memo from Mr. White to Dr. Farber dated November 22, 1974, discussing the prospects for profitable operation of the Niagara Falls facility. Mr. White listed the strengths and weaknesses of the operation to aid in determining whether to consider expansion of Solvent's capacity for chlorinated benzene production beyond the target of 20 million pounds annually. Under "strengths," Mr. White indicated that ICC had the "[a]bility to obtain special streams for conversion," and that the Solvent facility had the capacity "to convert streams to finished product by distillation and to chlorinate waste stream to saleable product" (Ex. 42, p. 1). Mr. White testified that the basis for this memo was to address Dr. Farber's desire to expand production at the Solvent facility. According to Mr. White, the reference to "waste stream" was meant to be descriptive only, since it was not "waste" if it could be converted to saleable product (T4 at 59-61).

Mr. White testified that the color of the material obtained from Recochem was a problem depending upon the end use of the converted product. If the end use was emulsified ortho to be spread over garbage dumps, it made no difference what color the material was prior to conversion. Mr. White could not recall how much emulsified orthodichlorobenzene Solvent actually sold. Exhibit 89 is a copy of the minutes of a

production planning meeting which took place at Solvent on August 27, 1976, indicating that Solvent was not in the emulsified ortho market at that time but was looking into the feasibility of producing and marketing an emulsifier product like "Cloroben" (Ex. 89, p. 4; T4 at 63-67).

Exhibit 123 is a Solvent Chemical weekly production report for the week of January 14-20, 1977, indicating that Solvent needed to produce 90% ortho "to blend with inferior Kuchar material to make [it] saleable" (Ex. 123, p. 1).

Mr. White was shown several exhibits indicating that some of the material Solvent received from Recochem was below specification for color and ortho content or was otherwise considered to be inferior, causing Solvent to incur additional processing costs, resulting in billing credits and the eventual termination of the tolling agreement (see, e.g., Exs. 8, 105, 257, 165, 702, 172, 170, 540, 178, 180, 195, 316; T4 at 72-83).

D. Joseph Kuchar

Joseph Kuchar testified that he was born in Vienna, Austria in 1916. He emigrated to Canada in 1950 and started Recochem under the name Record Chemical Company. At its outset, Recochem made naphthalene, which was derived from the distillation of coal tars. Eventually, the coal tar distillation column was modified to make chlorinated benzenes. Recochem sold orthodichlorobenzene of 50% to 75% purity mostly to Canadian customers, who used it for various purposes such as carbon removal, disinfecting outdoor toilets, heat transfer, emulsifying, and removing oily substances from tankers and ships. Among these customers were the Moran, Shawinigan, Cromac, and Magnus Chemical Companies (T4 at 95-99).

Mr. Kuchar testified that Recochem considered purchasing the Solvent plant at some time in the 1970s. According to Mr. Kuchar, he wanted to see what the plant could do, so Solvent ran the plant under the direction of Recochem. In early 1978, when it became apparent that the equipment was unable to perform as promised, Recochem withdrew from negotiations. Recochem continued to provide assistance to Solvent in trying to find solutions for the plant's operational problems and engaged Mr. Kingsley Poole, a chemical engineer from Allied Chemical, to provide technical advice. Mr. Kuchar never signed an agreement to purchase Solvent and never paid Solvent any money. No Solvent employee was ever paid or fired by Recochem. He did not open a bank account in the name of Record or "Hydra-Clene."¹⁶ In short, he testified that he never operated the Solvent plant (T4 at 99-101).

On cross-examination, Mr. Kuchar testified that only one customer—Allied Chemical—bought ortho from Recochem at 80% or higher purity. Every other customer bought a lower grade (T4 at 101-03).

Mr. Kuchar testified that the purpose of having Solvent operate the plant prior to Recochem's purchase was to see whether the benzene column could withstand cold weather operation. However, the benzene column was frozen and could not be operated. He had prepared some documents indicating that the company would be renamed Hydra-Clene Niagara Division, but the name change was never implemented. Both Hydra-Clene and Chemical Refineries, Inc. were wholly owned subsidiaries of Recochem (T4 at 103-05).

¹⁶"Hydra-Clene, Inc." and "H.C. Niagara Division" were the corporate names proposed by Recochem for the entity that would operate the facility in the event of a purchase.

Mr. Kuchar testified that following the unsuccessful attempt to operate the Solvent plant in January 1978, he remained interested in keeping the plant operating but was no longer interested in purchasing it. Exhibit 239 is an application for financial assistance submitted to the Niagara County Industrial Development Agency ("NCIDA") dated March 1, 1978 and signed by Mr. Kuchar. He testified that the application was never filed and that he could not recall whether NCIDA ever approved the funding. Exhibit 232 is a Telex dated January 25, 1978 from Mr. Kuchar to Dr. Farber, Mr. White, and Mr. Lieberman indicating the problems encountered with the plant during the one-week evaluation period. Exhibit 234 is a Telex dated January 31, 1978 from Mr. Kuchar to Mr. White, indicating that Recochem was negotiating with Citicorp and the NCIDA, and noting that the takeover of the plant was subject to certain conditions outlined in a Telex dated January 20, 1978.¹⁷ According to Mr. Kuchar, those conditions were not fulfilled (T4 at 106-10).

Mr. Kuchar also testified that he was directly involved in the commercial aspects of negotiating the contracts governing the transactions between Recochem and Solvent, and at times communicated directly with Mr. White with respect to complaints or concerns about the quality of the materials received from Solvent (T4 at 111-13).

The remaining witnesses, David Rankin and Gregory Del Duce, testified with respect to the circumstances of Recochem's alleged operation of the Niagara Falls facility in early 1978.

¹⁷The January 20, 1978 Telex was not presented as evidence at trial.

E. David Rankin¹⁸

Mr. Rankin testified that he is employed by the Dover Chemical Company and was working at Dover during the mid-1970s when the Solvent Facility in Niagara Falls was in operation. His duties were to train and advise Solvent employees in the areas of human resources and environmental affairs. He visited the Niagara Falls plant periodically from late 1975 through late 1977, when the company shut down its operations. There was a brief restart of operations in early 1978 while Solvent was negotiating with Recochem for purchasing the facility. According to Mr. Rankin, Recochem did in fact purchase the facility, but backed out of the deal after a short period (T2 at 103-06).

Mr. Rankin testified that he participated in several meetings after the sale for the purpose of implementing Recochem's takeover of the Niagara Falls facility. Joseph Kuchar was present at those meetings, which took place over a period of several weeks. Discussions were held about operation of the phones, changing the names on health insurance contracts, and termination/rehiring of employees. According to Mr. Rankin, the facility was not in operation immediately prior to Recochem's takeover. When Mr. Kuchar and other Recochem representatives arrived, operations resumed under their direction and continued for several months (T2 at 106-09).

Exhibit 226 is a memorandum dated January 5, 1978 entitled "New Desk File – H.C. Niagara Transition." It lists several individuals present at a meeting held at the facility on

¹⁸Mr. Rankin is the Vice President of Environmental Affairs for the Dover Chemical Company, in Dover, Ohio. In his current capacity at Dover, Mr. Rankin is responsible for coordinating the activities of the engineering consultants and contractors implementing the remedial work at the 3163 Buffalo Avenue Site. At the time of trial, the remediation consisted of several production wells pumping water through aeration and carbon filtering devices, and then to publicly owned chemical treatment works, to remove contaminants (including chlorinated benzenes) (T2 at 101-03).

that date, including Joseph Kuchar and Bryan Kingsley-Poole from Recochem (T2 at 109-10).

Exhibit 232 is a Telex dated January 25, 1978 from Mr. Kuchar to "ICC Trade NYK." It states: "We have undertaken to direct the operation of the Solvent Chemical Niagara plant for one (1) week to establish during this evaluation period whether or not the plant can operate." The Telex also advises that the benzene feed line was frozen, preventing testing of the chlorinator. According to Mr. Rankin, the feed line would not have frozen if the plant had been in continuous operation (T2 at 110-11).

Mr. Rankin testified that an individual by the name of Lonnie Lingenfelter had applied and was interviewed for a position with Solvent as maintenance manager for the Niagara facility, but Solvent was unable to hire him because of the plant's being shut down. However, Mr. Kuchar agreed to pay Mr. Lingenfelter's salary for the period during which Recochem operated the facility (T2 at 111-13).

On cross-examination, Mr. Rankin was shown Exhibit 266, which is an audit report dated February 22, 1979 containing a "summary of activities [at the Niagara Falls facility] during 1978 and the major factors which contributed to the pre tax loss of approximately \$1,150,000." This report states as follows:

ICC management had been negotiating with Record Chemical Co. of Montreal to sell Solvent Chemical Co., Inc. since October 1977. On or about December 31, 1977 an agreement was reached which was to have taken effect on that date. On January 5, 1978 Record backed out of the agreement [c]iting that misrepresentations were made regarding the completeness of certain capital projects. The next three months were spent renegotiating the sale during which time, at Record[']s assistance, production was started up on a full scale to ascertain production capabilities.

Negotiations finally proved unsuccessful with Record and ICC negotiated a sale of assets to Transit Holding Company for \$1,000,000 effective June 21, 1978.

(Ex. 266). Mr. Rankin testified that he was not present at the Niagara Falls facility during the entire negotiation period, but he recalled that Recochem had purchased the facility and was operating it at full scale to see what it could do (T2 at 120-23).

Exhibit 224 is a copy of the minutes of a special meeting of Solvent's Board of Directors held on January 3, 1978. As indicated in the minutes, the purpose of the meeting was to approve, ratify, and confirm the agreement between Solvent and Recochem, "dated and executed on December 30, 1977," for purchase and sale of all of Solvent's assets. According to Mr. Rankin, these minutes indicate that a purchase agreement was in fact reached and was executed. He also testified that he had participated in due diligence activities regarding the purchase of other facilities, but none had involved the prospective purchaser's actual operation of the facility or directing how the phones should be answered (T2 at 123-26).

F. Gregory Del Duce

Gregory Del Duce was employed at Solvent's Niagara Falls facility as plant comptroller for approximately five years, between 1973 and 1978. His duties included handling the books and financial affairs of the company. He left Solvent's employ in 1978 when the plant was closed. Prior to the actual closing, Solvent was trying to sell the plant and was negotiating with Recochem as a potential buyer. Mr. Del Duce was not involved in the negotiations, but provided information to Mr. White and Mr. Kuchar in connection with the proposed transaction. In this regard, Mr. Del Duce met with Mr. Kuchar on at least

two occasions, once at Recochem's facilities in Montreal and once at Solvent's Niagara Falls facility. During the Niagara Falls visit, Mr. Kuchar stated that he had terminated all of Solvent's employees and had directed them to reapply at the human resources department. Mr. Del Duce also accompanied Mr. Kuchar to a bank to open an operating account (T2 at 127-31).

Exhibit 485 contains Mr. Del Duce's handwritten and typed notes pertaining to the sale of the plant. The notes indicate that Recochem had "[p]urchased certain of the plant assets" (Ex. 485, Bates No. JFM 1014447; T2 at 132-33).

Mr. Del Duce testified that he authored the February 22, 1979 audit report (Ex. 266), which stated that the plant was restarted on a full scale during the first three months of 1978 to ascertain production capabilities while the purchase agreement between Solvent and Recochem was being renegotiated (T2 at 135-40).

On cross-examination, Mr. Del Duce testified that he had nothing to do with the sale, and never saw any contract or other document indicating that Recochem had taken ownership of the facility. He never received a check from Recochem, Hydra-Clene, or any entity other than Solvent. Although he was the comptroller, he was not aware of any insurance transfers, assignments, or purchases, nor was he aware of any Solvent employee who received a paycheck from Recochem (T2 at 140-42).

On redirect examination, Mr. Del Duce was shown Exhibit 234, which is a letter from Mr. Kuchar to ICC dated January 31, 1978, stating: "I'm giving you below operating results of the Niagara plant during the months of Jan., and 1 week during which we had the mandate to operate the plant." According to Mr. Del Duce, in his experience it would not be typical for a purchaser engaged in due diligence inspection to report the results of plant

operations to the seller. This letter also indicates that Kuchar was reporting the results of operating the plant in late January 1978 despite the statement in the audit report (Ex. 266) that Recochem backed out of the deal in early January (T2 at 164-65). Mr. Del Duce also reviewed the January 25, 1978 Telex message from Kuchar to ICC (Exhibit 232), reporting that Recochem had undertaken to direct the operation of the Solvent plant for one week as an evaluation period to establish whether or not the plant could operate. The message further reports that Recochem was testing the distillation columns at the plant, and that “technical mistakes” involving this and other equipment led Kuchar to the conclusion “that the period of time of one (1) week is definitely not sufficient to give either you or ourselves a true picture” (Ex. 232; T2 at 166-67).

FINDINGS OF FACT

Based on this testimony and the documentary evidence presented at the trial, and considering the parties’ post-trial submissions and arguments, the court makes the following findings of fact in accordance with Fed. R. Civ. P. 52.

I. Chlorinated Benzenes

During the relevant time period, both Solvent and Recochem were in the business of manufacturing, processing, and selling chlorinated benzenes. Chlorinated benzenes are formed by a chemical process in which chlorine atoms are substituted for hydrogen atoms on the benzene molecule ring. Substitution of one chlorine atom produces monochlorobenzene; substitution of two chlorine atoms produces dichlorobenzene, and

so on. It is the production, processing, and sale of dichlorobenzenes that is at the center of the dispute regarding the Recochem defendants' CERCLA liability.

There are three isometric forms of dichlorobenzene, depending on the relative position of the two chlorine atoms. If the two chlorine atoms are adjacent to one another, the isomer is called orthodichlorobenzene ("ortho"). If they are opposite each other, the isomer is paradichlorobenzene ("para"). If they are separated by one hydrogen molecule, the isomer is metadichlorobenzene ("meta").

These isomers have different physical properties and uses. During the relevant time period, para was marketed in its pure and solid form for use as mothballs, deodorizers, urinal cakes, and air fresheners. It was also used as a reactant for chemical synthesis in plastic manufacturing. Ortho was marketed in various grades for use as a solvent, degreaser, industrial deodorant (in emulsified form), and as an intermediate reactant for further chemical synthesis. Meta had limited commercial use as an intermediate chemical agent in the manufacture of fungicides and solvents.

As the preceding summary of the trial testimony indicates, the core of the dispute in this case as to whether the material shipped to Solvent by Recochem comprised saleable "product" or non-useful "waste" is centered on the physical properties of the various grades of orthodichlorobenzene which were marketed and sold, or recognized as saleable products, within the chlorinated benzene industry during the relevant time period. The preponderance of the evidence presented to the court establishes that there were essentially two grades of orthodichlorobenzene that were regularly marketed by the *major* producers of chlorinated benzene products in the 1970s: a refined grade (sometimes referred to as "pure" ortho), and a technical grade (sometimes referred to as "tech" ortho).

Refined or pure ortho was typically 98% or more pure—*i.e.*, comprised of 98% or more of the ortho isomer. Technical grade ortho was typically comprised of 80% or more of the ortho isomer, was substantially clear in color (generally with an APHA rating not exceeding 25-30), and contained only a minimal amount (not exceeding approximately 2%) of meta.

There was also considerable testimony and documentary evidence presented at trial indicating that in the 1970s, *smaller* producers and processors of chlorinated benzene materials (such as Recochem and Solvent) regularly marketed ortho materials containing less than 80% of the ortho isomer. By way of example, Mr. Carmichael testified that Recochem routinely sold ortho material containing anywhere from 50% to 99% ortho content (see T3 at 8-9, 23, 48-49, 135-36). Mr. White testified that ortho material with an ortho content of less than 80% was not only a saleable product for which there were many uses, it was the very product that Solvent processed and sold (T3 at 162-63).

II. Solvent's Operations at the Site

Solvent operated its chemical processing facility at the Site for a relatively short period, from approximately 1974 to 1978. Significantly, Solvent's operations at the Niagara Falls facility did not generally involve the manufacture of chlorinated benzenes from pure raw materials. Rather, Solvent's primary business function at the Niagara Falls facility was as a "reprocessor" of mixed chlorinated benzene streams purchased from outside suppliers.

Solvent's reprocessing operations involved purchasing off-specification or low-purity chlorinated benzene material from other manufacturers or suppliers and processing this material to make it into a saleable grade of chlorinated benzene. The process included

distillation, filtering, and/or blending the purchased lower-grade chlorinated material with purchased higher-grade chlorinated benzene material to remove impurities, improve color, and increase the percentages of the dominant isomer. Solid residues from the distillation process were accumulated in steel drums and disposed of off-site by approved waste disposal contractors.

As reflected in the trial testimony and in Solvent's sales records, Formula File, and other internal documents, Solvent's product sales were not limited to the reprocessed, higher-percentage ortho materials. For example, a summary of Solvent's "Chlorobenzene Sales and Revenue" (Ex. 371) lists sales in the year 1972 (prior to its relocation from Malden to Niagara Falls) of 946,570 pounds of ortho material with an ortho content of between 65% - 75%, resulting in revenues of \$155,277.06 out of a total of \$449,767.04 for 1972 sales of all chlorobenzene materials. The Formula File indicates that as of April 1976,¹⁹ Solvent had at least two customers for 50% ortho,²⁰ and five customers for 70% ortho.²¹

¹⁹See Ex. 78, Bates No. JFM1019784-W, indicating that the Formula File was revised as of April 1976.

²⁰Cosmopolitan Chemical Company (Ex. 78, Bates No. JFM1019870-W); Utility Chemical Company (*id.*, Bates No. JFM1019920-W).

²¹Milwaukee Solvent (Ex. 78, Bates No. JFM1019892-W), Neville Chemical Company (*id.*, Bates No. JFM1019896-W), Warren Chemical Company (*id.*, Bates No. JFM1019922-W), Oakite Chemical (*id.*, Bates No. JFM1019902-W) and Southland Solvent (*id.*, Bates No. JFM1019909-W).

III. Recochem's Business

One of Solvent's largest suppliers of mixed chlorinated benzene material was Recochem. During the relevant time period, Recochem's business was manufacturing and selling chlorinated benzenes, as well as naphthalene. Manufacturing operations were conducted in Napierville, Quebec, through its wholly owned subsidiary, Chemical Refineries.

Recochem's primary business objective was to manufacture and market paradichlorobenzene, using mixed dichlorobenzene streams as raw materials. Prior to 1973, Recochem was able to purchase high-purity para raw materials (*i.e.*, with para content above 94%), and its equipment was capable of upgrading the 94% para to 99.5%. But after the 1973 Arab oil crisis, these high-purity para materials became unavailable, and the only chlorinated benzene raw materials Recochem was able to obtain in reasonable quantities had a much lower para content and a higher content of ortho and meta. In order to process these materials, Recochem modified its existing distillation columns to purify the ortho and installed new crystallizers to purify the para.

As a result of this modified para manufacturing process, Recochem generated as a co-product ortho material containing anywhere from 50% to less than 80% ortho. As evidenced by the September 23, 1976 contract as well as contemporaneous shipment records and memoranda, Solvent was a regular customer for this type of ortho material during the time period relevant to this litigation. In addition to Solvent, Recochem had several customers for ortho of this type. These customers were mostly in the Canadian market, where lower-grade ortho was regularly used in solvent, degreaser, and emulsifier applications.

Significantly, there is no testimony or documented proof to indicate that Recochem disposed or paid for disposal of any of its orthodichlorobenzene products during the 1970s, or otherwise considered materials with less than 80% ortho to be waste. Instead, the evidence presented at trial shows that Recochem was able to sell substantially all of its ortho inventory during that period, primarily to its Canadian customers. Recochem did dispose of ortho materials during the 1980s and 1990s when the market for orthodichlorobenzene diminished as the result of environmental controls and other factors.

IV. The Recochem/Solvent Transactions

The business relationship between Solvent and Recochem had existed since approximately 1971, predating Solvent's relocation from Malden to Niagara Falls. In September 1976, Solvent and Recochem entered a written contract involving both direct sales of mixed dichlorobenzenes (referred to by the parties as "straight" sales) and a "tolling" arrangement whereby Solvent sent mixed dichlorobenzene material to Recochem for processing to extract para, after which Recochem returned the para and ortho materials to Solvent. The trial record reflects that the parties became dissatisfied with the quality of materials delivered pursuant to the contract, and it was canceled in April 1977.

Notwithstanding the discontinuation of the short-lived "straight sale/tolling" arrangement, the trial record shows that Solvent purchased over 3 million pounds of ortho materials from Recochem between January 1976 and September 1977. Most of these materials had an ortho content between 69% and 78%, with some below 60%. The materials were often off-color and often contained significant levels of meta. The price generally ranged from \$.18 to \$.20/lb., which was substantially below the prices for ortho

tech reported in the *Chemical Market Reporter* during 1976 and 1977—*i.e.*, between \$.30 and \$.33/lb.

However, as both Mr. Carmichael and Mr. White testified, Recochem and others in the chemical industry did not regularly rely upon the *Chemical Market Reporter* listings as accurate reflections of market price because the listings do not reflect such pertinent market variables as foreign markets, spot markets, fluctuations in supply and demand, discounts, individual arrangements between co-producers, product shortages, and plant problems. In addition, most of the customer formulations for ortho products listed in Solvent's Formula File allowed for a combined para/meta content of 20%, and no customer placed any further specific restrictions on meta content. This indicates that the presence of meta in material marketed as ortho did not necessarily affect Solvent's ability to sell the product for a profit.

Clearly, the ortho materials purchased from Recochem were not always saleable as is, and often needed additional processing to be sold by Solvent as technical grade ortho. However, as discussed, reprocessing lower-grade ortho material was the very nature of Solvent's business, and Solvent marketed and sold significant quantities of chlorinated benzene material containing less than 80% of the ortho isomer.

The trial record also reflects that in late 1977, Solvent began to reduce its inventory in anticipation of ceasing its operations and selling the Niagara Falls plant. In August 1977, nearly 1.5 million pounds of the ortho/para material obtained from Recochem remained at the facility and was identified as an inventory problem. By the end of December 1978, when Solvent had completely ceased operations, this amount had been reduced to

approximately 750,000 pounds and was valued at \$.13/lb. At that time, Mr. White (who had left Solvent to join Sobin Chemicals) purchased this remaining inventory at \$.10/lb.

V. Recochem's Operation of the Site

In the summer and early fall of 1977, Solvent temporarily shut down its chlorinated benzene processing operations to complete certain capital improvements. Operations resumed temporarily in the fall of 1977, but ceased again in late 1977 while management contemplated either permanently closing the facility or selling it.

Around the same time, Recochem and Mr. Kuchar entered into negotiations with Solvent to purchase the Niagara Falls facility. By late December 1977, Solvent and Recochem had reached an "Assets Purchase Agreement," under which Recochem agreed to purchase substantially all of Solvent's assets. Shortly thereafter, Mr. Kuchar and other representatives of Recochem came to Niagara Falls and took actions to restart the plant in order to determine its operational capacity. Mr. Kuchar personally informed Solvent employees that they were terminated and instructed them to reapply for employment while the plant operated under Recochem's direction. Mr. Kuchar also instructed that the telephone at the Solvent facility be answered under the name of "Hydra-Clene Division of Record Chemical," and he opened a new bank account for the facility. He hired a new employee, Lonnie Lingenfelter, to work at the facility during this period to assist in the restarting of chemical production operations.

On January 3, 1978, Mr. Kuchar sent a Telex to the employees of Solvent announcing that as of that day, the plant would operate as "H.C. Niagara Division" of Recochem. In a January 25, 1978 Telex, Mr. Kuchar stated that "[w]e have undertaken

to direct the operation of the Solvent Chemical Niagara Plant” on a trial basis. He indicated that Recochem had begun operational activities at the Site, including the use of the distillation column and benzene feed lines. On January 31, 1978, Mr. Kuchar reported the operating results for January 1978 to Mr. White, which included the production of chlorinated benzenes.

Recochem’s involvement at the Site extended well beyond January 1978. Brian Kingsley-Poole, a Recochem engineer, continued to be involved in operational decisions with respect to the Site until at least late March 1978, including the ultimate decision to shut down the facility. In addition, Recochem and Mr. Kuchar continued to receive information concerning the Site and pursued financial incentives to acquire the Site as late as August, 1978.

During the period of time that Recochem and Mr. Kuchar operated the facility, chlorinated benzene material was released into the environment at the Site.

CONCLUSIONS OF LAW

I. Basic Standards for CERCLA Contribution Liability

Solvent seeks to impose liability on Recochem and Mr. Kuchar pursuant to CERCLA § 113(f)(1), which states that “[a]ny person may seek contribution from any other person who is liable or potentially liable under [CERCLA § 107(a)]” for the costs of responding to releases or threatened releases of hazardous substances. 42 U.S.C. § 9613(f)(1). To establish CERCLA contribution liability, a plaintiff must show that (1) the site is a “facility” as defined in the statute, (2) a release or threatened release of a hazardous substance has occurred, (3) the release or threatened release has caused the plaintiff to incur response

costs that were necessary and consistent with the National Contingency Plan ["NCP"] set up by CERCLA, and (4) the defendants fall within one or more of the four classes of responsible persons described in CERCLA § 107(a). *Freeman v. Glaxo Wellcome, Inc.*, 189 F.3d 160, 164 (2d Cir. 1999); *Bedford Affiliates v. Sills*, 156 F.3d 416, 427 (2d Cir. 1998).

There is no dispute in this case that the Site is a "facility" at which hazardous substances have been released into the environment, and that Solvent has incurred response costs necessary and consistent with the NCP. The only matter in dispute between Solvent and Recochem at this stage of the litigation, and the focus of the proof and argument presented at trial, is whether Recochem and/or Mr. Kuchar can be considered "responsible persons" under CERCLA § 107(a). That section establishes four classes of "covered persons" liable for response costs:

(1) the owner and operator of a vessel or a facility,

(2) any person who at the time of disposal of any hazardous substance owned or operated any facility at which such hazardous substances were disposed of,

(3) any person who by contract, agreement, or otherwise arranged for disposal or treatment, or arranged with a transporter for transport for disposal or treatment, of hazardous substances owned or possessed by such person, by any other party or entity, at any facility or incineration vessel owned or operated by another party or entity and containing such hazardous substances, and

(4) any person who accepts or accepted any hazardous substances for transport to disposal or treatment facilities, incineration vessels or sites selected by such person, from which there is a release, or a threatened release which causes the incurrence of response costs, of a hazardous substance

42 U.S.C. § 9607(a); see *B.F. Goodrich Co. v. Murtha*, 958 F.2d 1192, 1198 (2d Cir. 1992).

The issues have been further narrowed through motion practice and trial to Solvent's contentions that (1) Recochem and Kuchar should be found liable under § 107(a)(2) because they operated the facility during a time in early 1978 when hazardous substances were disposed of there, and (2) Recochem and Kuchar should be found liable under § 107(a)(3) because they arranged for the disposal or treatment of hazardous substances. Since the greater part of the proof and arguments presented at trial focused on the latter contention, the court will address the issue of "arranger liability" first.

II. Arranger Liability Under CERCLA § 107(a)(3)

As discussed at some length in this court's July 22, 2002 summary judgment decision (as well as in its August 14, 2002 decision granting summary judgment in favor of the Bay State Smelting Company, see *State of New York v. Solvent Chemical Co., Inc.*, 225 F. Supp. 2d 270, 279-83 (W.D.N.Y. 2002)), Congress did not specifically define the terms of "arranger liability" in the CERCLA statute. However, the courts have liberally construed § 107(a)(3) "in order to achieve CERCLA's overwhelmingly remedial statutory scheme." *United States v. Pesses*, 794 F. Supp. 151, 157 n.21 (W.D.Pa. 1992) (citation omitted). As a general matter, "[w]hether an 'arrangement for' disposal exists depends on the facts of each case. If a party merely sells a product, without additional evidence that the transaction includes an 'arrangement' for the ultimate disposal of a hazardous substance, CERCLA liability would not be imposed." *Florida Power & Light Co. v. Allis Chalmers Corp.*, 893 F.2d 1313, 1317 (11th Cir. 1990); see also *Glaxo Wellcome*, 189 F.3d at 164; *Pneumo Abex Corp. v. High Point, Thomasville & Denton R.R. Co.*, 142 F.3d 769, 775 (4th Cir.), *cert. denied*, 525 U.S. 963 (1998).

In addition, the courts have uniformly held that by expressly incorporating into CERCLA the definition of “disposal” from the Solid Waste Disposal Act (“SWDA”), see 42 U.S.C. §§ 6903(3), 9601(29), Congress intended that only transactions involving “waste” constitute arrangements for disposal within the meaning of CERCLA. See *A & W Smelter & Refiners, Inc. v. Clinton*, 146 F.3d 1107, 1112 (9th Cir. 1998); see also *3550 Stevens Creek Assocs. v. Barclays Bank of California*, 915 F.2d 1355, 1362 (9th Cir. 1990) (“disposal” for purposes of § 107(a)(3) refers “only to an affirmative act of discarding a substance as waste, and not to the productive use of the substance.”), *cert. denied*, 500 U.S. 917 (1991).

By the same token, “a waste generator’s liability under CERCLA is not to be . . . facilely circumvented by its characterization of its arrangements as “sales”” *Glaxo Wellcome*, 189 F.3d at 164 (quoting *State of New York v. General Elec. Co.*, 592 F. Supp. 291, 297 (N.D.N.Y. 1984)). Thus:

A party’s characterization of its hazardous substance transaction as a sale does not automatically preclude a finding that the party is a responsible person under Section 9607(a). Selling hazardous substances as part of a complete, useful product does not generally make a party a responsible person. Neither does selling a useful ingredient in a manufacturing process. However, a party is a responsible person when a transaction—even though characterized as a “sale”—is a sham for a disposal.

United States v. Petersen Sand & Gravel, Inc., 806 F. Supp. 1346, 1354 (N.D. Ill. 1992) (citations omitted).

In considering whether a defendant has sold a useful product or disposed of waste, “courts have not hesitated to look beyond defendant’s characterizations to determine whether a transaction in fact involves an arrangement for the disposal of a hazardous

substance.” *United States v. Aceto Agric. Chemicals Corp.*, 872 F.2d 1373, 1381 (8th Cir. 1989). It is the nature of the transaction, not the parties’ characterization, that determines whether the useful product defense applies. *Environmental Protection Agency v. TMG Enterprises, Inc.*, 979 F. Supp. 1110, 1123 (W.D.Ky. 1997) (citing *United States v. Maryland Sand, Gravel & Stone Co.*, 1994 WL 541069 (D.Md. 1994)).

To resolve this “product versus waste” dilemma, the courts have engaged in fact-intensive examinations of the transactions involving the transfer of hazardous substances to see if the particular transaction was a sale of useful product rather than an arrangement for disposal of hazardous substances. See, e.g., *Prudential Ins. Co. of America v. U.S. Gypsum*, 711 F. Supp. 1244, 1253, 1254 (D.N.J. 1989). Among the factors courts have found significant in making this determination are:

[T]he party’s knowledge of and control over the disposal, ownership of the hazardous substance at the time of disposal, and the intent of the party; the purpose and inevitable consequences of the transaction and whether the product had value on the market; whether the substance had a productive use or was more properly characterized as waste to be gotten rid of; whether the substance was manufactured as a principal business product or a by-product, and whether, before or after the transaction in issue, the seller disposed of the substance as waste; and whether an already used product which has further usefulness is being sold for the same use for which it was manufactured.

United States v. American Cyanamid Co., Inc., 1997 U.S. Dist. LEXIS 4413, at *16-*17 (S.D. W.Va. 1997) (citations omitted). Courts also consider:

the intent of the parties to the contract as to whether the materials were to be reused entirely or reclaimed and then reused, the value of the materials sold, the usefulness of the materials in the condition in which they were sold, and the state of the product at the time of transferral (was the hazardous material contained or leaking/loose).

Pneumo Abex, 142 F.3d at 775 (citing cases).

Simply put, if the material at issue is “a useful product, then it [is] not waste and not subject to CERCLA.” *A & W Smelter and Refiners*, 146 F.3d at 1112. Stated another way, “arranger liability may be defeated when a defendant asserts and proves it was not disposing of, or delivering for treatment, a hazardous substance, but was selling a useful product.” *RSR Corp. v. Avanti Development, Inc.*, 68 F. Supp. 2d 1037, 1043 (S.D. Ind. 1999). Conversely,

the useful product defense is not applicable when the product is deemed to be waste and of no further use to the seller and when it can be shown that the seller’s motivation was to get rid of the product, even though the buyer makes further use of the product and pays valuable consideration for it.

American Cyanamid; 1997 U.S. Dist. LEXIS 4413, at *16.

As these cases suggest, the sale of a useful product does not in every instance establish a complete defense to a claim of arranger liability. If (as in this case) the product contains hazardous materials, the transaction “falls somewhere between the no-liability, useful product cases, and the classic arranger situations where, for example, the owner of a hazardous substance directly disposes of it.” *California Dept. of Toxic Substances Control v. Payless Cleaners*, 368 F. Supp. 2d 1069, 1077 (E.D. Ca. 2005).

While the parameters of this type of “in-between” arranger liability are not particularly well defined, the cases instruct that a vendor of a product may be liable as an arranger when the disposal of waste is a “substantial” part of the transaction. For example, in *Cadillac Fairview/Cal., Inc. v. United States*, 41 F. 3d 562 (9th Cir. 1994), the defendants shipped contaminated styrene to a chemical company to remove the contaminants and return clean styrene for use as an essential component in the manufacturing of synthetic rubber. The court ruled that even though the transaction created a useful product, “the

substance of the transaction[]” constituted the arrangement for the disposal of hazardous waste. *Id.* at 566.

In *Catellus Development Corp. v. United States*, 34 F. 3d 748 (9th Cir. 1994), the owner of contaminated property formerly used as a dumpsite for spent battery casings brought a private action under CERCLA against an automotive parts vendor which sold dead car batteries to a lead reclamation company, which in turn disposed of the casings. The vendor argued that the dead batteries sold to the reclamation company could not be characterized as waste because they were being recycled, and the lead extracted from them would be put to further productive use. The court disagreed, holding that despite the vendor’s lack of control over eventual disposal of the remaining waste, he was liable as an arranger. *Id.* at 752-53.

Relying on the *Catellus* decision in its July 22, 2002 summary judgment ruling, and narrowing the issues for trial even further, this court examined the regulations implementing the SWDA, which provide a detailed discussion of when recycled material should be considered waste. *Solvent Chemical*, 218 F. Supp. 2d at 339 n.9 (citing *Catellus*, 34 F.3d at 752). The regulations define “solid waste” as any discarded material which is “[a]bandoned . . . [r]ecycled . . . or [c]onsidered *inherently waste-like*” 40 C.F.R. § 261.2(a)(2) (2004).

However, an exception explains that certain materials to be recycled are not solid waste. “Materials are not solid wastes when they can be shown to be recycled by being: (i) Used or reused as ingredients in an industrial process to make a product, provided the materials are not being reclaimed.” 40 C.F.R. § 261.2(e) (1993). The regulations define reclamation: “A material is ‘reclaimed’ if it is processed to recover a usable product, or if it is regenerated. *Examples are recovery of lead values from spent batteries and regeneration of spent solvents.*” 40 C.F.R. § 261.1(c)(4) (1993) (emphasis added).

Catellus, 34 F.3d at 752, *quoted in Solvent Chemical*, 218 F. Supp. 2d at 339 n.9.

This court found it clear from the record presented on summary judgment that Solvent “reclaimed” the chlorinated benzene material shipped to it by Recochem, leaving for resolution by the factfinder “the pertinent question . . . whether the Recochem material was *already* a useful product *before* it was ‘reclaimed.’” *Solvent Chemical*, 218 F. Supp. 2d at 339 n.9.

What makes the “useful product” determination particularly difficult in this case is the underlying nature and purpose of Solvent’s short-lived business operations at the Niagara Falls facility—*i.e.*, the reprocessing of off-specification, low-purity chlorinated benzene materials, purchased from Recochem and other suppliers, into saleable product. Compounding the difficulty is the underlying nature of the transactions between Recochem and Solvent, which for the most part took place some thirty years ago, as well as the parties’ efforts to characterize the nature of the transactions well after the fact.

However, upon careful consideration of the testimony and exhibits presented at trial, in light of the pertinent factors outlined above, the court finds that at least some of Recochem’s shipments of chlorinated benzene material to Solvent constituted sales of a product that was already useful without any further processing. The uncontroverted trial testimony discussed at length above establishes that during the relevant time period, Recochem was in the business of manufacturing and selling chlorinated benzene material—specifically, paradichlorobenzene and orthodichlorobenzene. The primary objective of Recochem’s manufacturing process was to extract pure paradichlorobenzene from mixed dichlorobenzene streams, leaving orthodichlorobenzene as an inevitable co-

product.²² The ortho content of the co-product varied depending on the content of the raw material. Recochem sold orthodichlorobenzene with an ortho content of anywhere from 50% to 80% for use in making carbon-removing solvents and degreasers, and for combination with emulsifiers to make deodorizer products. According to the credible testimony of both Mr. Carmichael and Mr. Kuchar, Recochem had several customers in Canada for ortho of this type and, in fact, controlled the Canadian market for ortho, which was limited to solvent, degreaser, and emulsifier applications. Indeed, even Solvent's expert witness, Dr. Nauman, testified that these applications were consistent with recognized uses for lower grades of ortho during the relevant period (T1 at 81-82).

According to Mr. Carmichael, Recochem was incapable of producing orthodichlorobenzene with an ortho content of 80% or greater (T3 at 18). This is consistent with Dr. Nauman's testimony that Recochem's distillation column had the capability to produce 70% ortho (T1 at 26). Mr. Carmichael also testified that there was no appreciable market in Canada for high-purity ortho, since this product was used as a chemical intermediate in the manufacturing process for the "agro" chemical toluene diisocyanate, and the Canadian market for agro chemicals was not large enough to support a Canadian producer (T3 at 15).

²²The terms "by-product" and "co-product" are defined in 40 C.F.R. § 261.1(c)(3)(2004), as follows:

A "by-product" is a material that is not one of the primary products of a production process and is not solely or separately produced by the production process. Examples are process residues such as slags or distillation column bottoms. The term does not include a co-product that is produced for the general public's use and is ordinarily used in the form it is produced by the process.

See *Solvent Chemical*, 218 F. Supp. 2d at 340 n.10. As noted by the court in its July 22, 2002 decision, even Solvent's expert stated in his summary judgment affidavit that ortho, para, and meta were "co-products" obtained during the benzene chlorination process. *Id.* at 342.

The proof also shows that Solvent sold ortho product of less than 80% purity to several of its customers during the relevant time period. Those customers included Cosmopolitan Chemical, Utility Chemical, Milwaukee Solvent, Neville Chemical, Warren Chemical, Oakite Chemical, and Southland Solvent. As Mr. White testified, there were many recognized uses for this product, particularly as a solvent or degreaser, or as a component for other cleaning or deodorizing products. Indeed, it was “essentially what [Solvent] sold” (T3 at 162). This testimony directly contradicts Solvent’s contention that it was required to reprocess the material it obtained from Recochem in order to make it a commercially viable product.

This evidence also directly contraverts Dr. Nauman’s assertion that there was no established market in the 1970s for orthodichlorobenzene having an ortho content of less than 80% (see T1 at 29-30, 52, 62). Dr. Nauman’s conclusion was based primarily on the assumption that only “tech ortho” qualified as a saleable product, as well as the assumption that only material with 80% or greater ortho content qualified as technical grade ortho. These assumptions in turn were based in large part on the listings in the *Chemical Market Reporter*, which both Mr. Carmichael and Mr. White testified are not relied upon by the chemical industry as accurate reflections of market price. This is because the listings do not take into consideration such factors as foreign markets, spot markets, fluctuations in supply and demand, discounts, and other arrangements between co-producers, product shortages, plant problems, and other pertinent market variables. Furthermore, Dr. Nauman has no pertinent marketing experience in the chemical industry, contrasted with the many years of marketing experience on the part of Recochem’s witnesses. Significantly, no documentation was produced during discovery or at trial to support Dr. Nauman’s opinion

that orthodichlorobenzene of less than 80% purity was not a saleable product in the 1970s—an opinion directly controverted by Mr. Carmichael (see, e.g. T3 at 37-38).

The same is true with respect to Dr. Nauman's assumption that ortho product with an APHA rating of less than 25, or with more than 2% meta content, was not marketable (see T1 at 29, 38-39). According to Mr. Carmichael, the color and meta content of orthodichlorobenzene mixtures were not issues for solvent, degreaser, and emulsifier applications in the Canadian market (see T3 at 19, 30, 36).

Recochem's witnesses also provided uncontested proof with respect to the intent of the parties to the September 23, 1976 agreement, which governed at least some of the transactions between Recochem and Solvent at issue in this case. Specifically, Mr. Carmichael testified that the agreement was entered at Solvent's request to provide it with a source of paradichlorobenzene so that it could meet its commitments to customers in Japan (T3 at 26-27). The contract specified straight sales of significant amounts of para and 70% ortho material, for which Solvent agreed to pay Recochem valuable consideration. Mr. White—one of the signatories²³ to the agreement—testified that Solvent intended to benefit from the tolling arrangement by sending crude dichlorobenzene material containing 45% ortho and 37% para to Recochem for processing, and getting pure para and 66% ortho in return (T3 at 165-66). The para material was shipped to Japan, and the remaining 66% ortho material was used by Solvent for blending or sale "as is" for solvent, degreaser, or emulsifier applications (T3 at 166).

²³The other signatory, Mr. Kuchar, did not provide substantive testimony about his understanding of the intent of the September 1976 agreement.

Significantly, there is nothing in the contract, the testimony, or in any other evidence of record to show or suggest that Recochem considered the materials covered by the agreement to be “waste,” or that Recochem entered the September 1976 agreement with the intention merely “to get rid of” these materials. Indeed, it is clear from the face of the contract, and from the testimony of Recochem’s witnesses, that a substantial amount of the ortho materials subject to the tolling arrangement originated with Solvent, were sent to Recochem for processing, and were returned to Solvent in a more useful condition.

To paraphrase this court’s holding in its August 14, 2002 decision granting summary judgment in favor of Bay State, “[i]f [Recochem] had considered the material as waste, one logically would think that it would have paid Solvent to dispose of it.” *Solvent Chemical*, 225 F. Supp. 2d at 287. No evidence was introduced at trial to indicate that Recochem did any such thing. To the contrary, the evidence indicates that Recochem did not dispose or pay for disposal of any of its dichlorobenzene products during the 1970s, but instead was able to sell most of its inventory, primarily to its Canadian customers. Recochem did dispose of these products during the 1980s and 1990s when the market for orthodichlorobenzene diminished as the result of environmental controls and other factors (see T3 at 56-57).

Balanced against this evidence is considerable proof supporting Solvent’s contention that a substantial amount of the chlorinated benzene material sent by Recochem to Solvent during the relevant period required further processing before it could be marketed as a useful product. For instance, several contemporaneous memoranda, gas chromatograph analysis reports, and other documents suggest that much of this material contained high levels of meta and was outside the range of what Solvent—and

many of its customers—considered to be acceptable APHA color reference standards for marketable orthodichlorobenzene (see, e.g., Exs. 8, 70, 81, 90, 94, 97, 116). While some of this material may have been “useful” to Solvent in its reprocessing operations, there is ample proof in the trial record to suggest that Recochem regarded at least some of its transactions with Solvent as a way “merely ‘to get rid of’” chlorinated benzene material which required further processing before it could be sold. *Cooper Industries, Inc. v. Agway, Inc.*, 987 F. Supp. 92, 108 (N.D.N.Y. 1997) (quoting *Chesapeake & Potomac Tele. Co. v. Peck Iron & Metal Co.*, 814 F. Supp. 1269, 1275 (E.D.Va. 1992)) (other citations omitted).

In this regard, Recochem’s shipping records for 1976 and 1977 (Exs. 297 and 298, respectively), which are the only documents in the trial record submitted as proof of Recochem’s sale or shipment of ortho materials during the relevant period, show that Solvent was by far Recochem’s largest customer for chlorinated benzene material containing less than 80% ortho. Significantly, these records contain no specific listings for shipments of ortho products containing between 50% and 80% ortho, which Recochem’s witnesses testified comprised the majority of the Canadian market for chlorinated benzenes. Rather, the records indicate that “ortho 80%” and “ortho 80 - 85%” constituted the vast majority of the cumulative total of ortho products shipped by Recochem from its Napierville plant in 1976 and 1977.

The proof at trial also shows that the material sent by Recochem often required substantial reprocessing by Solvent before it could be sold as a commercially viable product with an ortho content of 80% or greater—as required by the vast majority of Solvent’s ortho customers (see Formula File, Ex. 78, Bates No. JFM1019860-JFM1019925). The reprocessing involved blending, distillation, and caustic washing to

eliminate the meta content and improve the color of the material, at “considerable extra expense” (Ex. 8, p. 1; see *also* Exs. 56, 105, 123, 124, 152, 153, 154, 156, 167, 183).

In addition, it was established at trial that most of the unprocessed chlorinated benzene material remaining in inventory when Solvent was trying to sell the Niagara Falls plant in the late 1970s was obtained from Recochem (see, e.g., Ex. 188). As Mr. White’s contemporaneous communications indicate (see Ex. 189), and as corroborated by his testimony on cross-examination (T4 at 21-23), this material was originally purchased by Solvent to be blended with higher purity ortho in order to make it saleable. Despite its concerted efforts over an 18-month period, Solvent was able to sell only a small amount of this material in the ordinary stream of commerce. The remaining inventory of approximately 800,000 pounds of ortho material was purchased by Mr. White, after he left Solvent to join Sobin Chemicals, at the drastically reduced price of \$.10/lb.—which was around half the price Solvent originally paid Recochem for the material. These facts clearly support the conclusion that at least by the late 1970s, the off-color, lower-purity, mixed chlorinated benzene material Recochem sent to Solvent was not a useful product in its existing state without further processing.

Finally, as noted earlier, this court previously determined in its July 22, 2002 summary judgment ruling that if the sales of material from Recochem to Solvent should be found to represent arrangements for disposal and treatment under CERCLA, the record also supported a finding of personal liability on the part of Mr. Kuchar based on his “direct and extensive” involvement in those arrangements. See *Solvent Chemical*, 218 F. Supp. 2d at 344. In this regard, the cases hold that arranger liability will attach to a corporate officer or director if, under the totality of the circumstances, he exercised actual control over

“activities that are causally connected to, or have some nexus with, the arrangement for disposal of hazardous substances” *United States v. TIC Investment Corp.*, 68 F.3d 1082, 1087-88 (8th Cir. 1995), *cert. denied sub nom. Georgoulis v. United States*, 519 U.S. 808 (1996); *see also United States v. Northeastern Pharmaceutical & Chemical Co., Inc.*, 810 F.2d 726, 744 (8th Cir. 1986), *cert. denied*, 484 U.S. 848 (1987). Here, the record is clear that Mr. Kuchar exercised actual control over the transactions involving the sale and delivery of chlorinated benzene materials by Recochem to Solvent, which the court has determined to represent—at least in part—arrangements for disposal under CERCLA § 107(a)(3) (see T4 at 111-13; *see also* Supplemental Answer No. 2 to Solvent’s First Set of Interrogatories, Item 1047, Ex. 15, p. 2 (Kuchar “was responsible for the commercial agreements/arrangements with Solvent”)).

Based on the above analysis, the court is unable to find that Solvent has established complete “arranger” liability on the part of Recochem and Mr. Kuchar, or that Recochem and Mr. Kuchar are entitled to a complete “useful product” defense to the contribution claims asserted against them. Rather, the proof shows that the substance of the transactions between Solvent and Recochem at issue in this case involved both the purchase of useful product and the arrangement for disposal of hazardous waste, and that both Recochem and Mr. Kuchar personally remain subject to Solvent’s contribution claim under CERCLA §§ 113(f)(1) and 107(a)(3). Notwithstanding the voluminous documentary and testimonial evidence already presented to the court, the determination of the extent to which Recochem and Mr. Kuchar are responsible for their proportionate equitable share of the harm caused at the Site must await the allocation inquiry to be conducted in the next phase of this litigation. *Cf. State of New York v. Westwood-Squibb Pharmaceutical Co.*,

Inc., 2004 WL 1570261, at *21-*22 (W.D.N.Y. May 25, 2004), and cases cited therein (discussing range of equitable factors for court to consider in allocating response costs under § 113(f)(1)).

III. “Operator Liability” Under CERCLA § 107(a)(2)

Solvent also seeks to hold Recochem and Mr. Kuchar liable as owners or operators under CERCLA § 107(a)(2), which imposes response cost liability on “any person who at the time of disposal of any hazardous substance owned or operated any facility at which such hazardous substances were disposed of” 42 U.S.C. § 9607(a)(2). According to Solvent, the proof shows that in late 1977 Solvent ceased operations at the Niagara Falls plant and eventually entered an agreement with Recochem for the purchase of substantially all of Solvent’s assets. This agreement was ratified by Solvent’s board of directors in January 1978, and operations at the facility were restarted under the direction of Recochem and Kuchar for a period of up to several months, during which chlorinated benzene material was released into the environment.

The Recochem defendants contend that while Recochem was interested in purchasing the Solvent plant, title never passed, and Solvent continued to operate the plant. According to Recochem, the restart of operations was accomplished as part of Recochem’s “due diligence” observation of the facility’s production capacity prior to finalizing the purchase. Solvent counters with the argument that there is no recognized “due diligence” defense to CERCLA liability.

Like so many other crucial terms, the term “operator” is not defined in the CERCLA statute. In *United States v. Bestfoods*, 524 U.S. 51 (1998), the Supreme Court provided the following definition of “operator:”

[U]nder CERCLA, an operator is simply someone who directs the workings of, manages, or conducts the affairs of a facility. To sharpen the definition for the purposes of CERCLA's concern with environmental contamination, an operator must manage, direct, or conduct operations specifically related to pollution, that is, operations having to do with the leakage or disposal of hazardous waste, or decisions about compliance with environmental regulations.

Id. at 66-67. Later in its opinion, the Court stated:

In our enquiry into the meaning Congress presumably had in mind when it used the verb “to operate,” we recognized that the statute obviously meant something more than mere mechanical activation of pumps and valves, and must be read to contemplate “operation” as including the exercise of direction over the facility's activities.

Id. at 71.

Following *Bestfoods*, several federal courts have adopted a test for CERCLA operator liability which requires a showing of actual and substantial control over the operations of the facility at which hazardous substances were released. See, e.g., *United States v. Township of Brighton*, 153 F.3d 307, 313-14 (6th Cir. 1998) (holding that *Bestfoods* requires “actual control” of site and affirmative acts to confer operator liability on municipality; rejecting “authority to control” test); *City of Wichita, Kansas v. Trustees of the Apco Oil Corporation Liquidating Trust*, 306 F. Supp. 2d 1040, 1054 (D. Kan. 2003) (adopting *Brighton* court’s rationale to impose operator liability on individuals); *Delaney v. Town of Carmel*, 55 F. Supp. 2d 237, 249-50 (S.D.N.Y. 1999) (finding that township’s mere regulation of hazardous waste disposal site did not meet “actual control” test). In order to impose operator liability under this standard, it must be shown that the operator

was “actively involved in decisions regarding disposal of hazardous substances or environmental compliance” at the time of disposal or release. *City of Wichita*, 306 F. Supp. 2d at 1055. This showing requires “more than casual or occasional involvement in such decisions. Instead, an operator under CERCLA must make the relevant decisions on a frequent, typically day-to-day, basis.” *Id.* (citing pre-*Bestfoods* cases from the First, Second, Third, Fifth, Sixth, Eighth and Eleventh Circuits).

Applying these standards to the facts presented in this case, I find that Solvent has established by a preponderance of the evidence that Recochem and Mr. Kuchar exercised a sufficient degree of control over the operations of the facility for a short time in the early part of 1978 to impose liability under CERCLA for the costs associated with remediation of environmental contamination caused by the release of chlorinated benzene materials at the Site during that period. It is clear that although the sale of assets contemplated by the fairly comprehensive “Assets Purchase Agreement” negotiated by the parties (see Ex. 394) never took place, and Recochem never obtained title to the Niagara Falls plant, Recochem and Kuchar were actively involved in restarting chlorinated benzene production at the facility in January 1978 in order to ascertain the plant’s operating capacity. Mr. Kuchar admitted at trial that Solvent “ran the company under our directives” for a period of time (T4 at 99). This is corroborated by the trial testimony of Mr. White (“[Recochem] directed the operations of the plant with Solvent's personnel . . . to see what the equipment was capable of doing”) (T4 at 13), as well as the deposition testimony of Dr. Farber (“There was a trial period that [Recochem] operated [the plant]”) (Item 1262, Farber Dep., p. 64).

In a Telex dated January 25, 1978, Mr. Kuchar reported to ICC that Recochem had “undertaken to direct the operation of the Solvent Chemical Niagara plant for one (1) week

to establish during this evaluation period whether or not the plant can operate” (E. 232). The Telex goes on to describe specific efforts undertaken to defrost the benzene feed line in order to test the plant’s chlorinator and efforts to test the plant’s distillation columns. In a January 31, 1978 memorandum, Mr. Kuchar reported to ICC the “operating results of the Niagara plant during the months [sic] of Jan., and 1 week during which we had the mandate to operate the plant” (Ex. 234). The information contained in these documents indicates Mr. Kuchar’s intimate knowledge of and involvement in the day-to-day operations of the Niagara Falls facility at least for the month of January 1978.

Several other documents indicate Recochem/Kuchar’s intent to control the operations of the plant during this period. For example, on January 3, 1978, Mr. Kuchar sent a memorandum to ICC advising that “as of today, the Niagara Plant will operate as H.C. Niagara Division of [Recochem] . . . ,” and expressing his “wish to assure continuity of the operation . . .” (Ex. 223). In a document dated January 5, 1978, Mr. Kuchar set forth production objectives for the year (Ex. 225), and a memorandum authored by Mr. Kuchar with the same date reports that a meeting was held that day “at H.C. Niagara Division . . . [t]o establish processing charges of chlorinated benzenes on a weekly basis . . .” (Ex. 226).

The evidence also shows that Recochem/Kuchar’s involvement in the operation of the facility extended beyond January 1978. Bryan Kingsley-Poole, a Recochem engineer, continued to be involved in operational decisions at the facility until late March 1978, including the ultimate decision to shut down the plant (see Exs. 244, 246). In addition, Mr. Del Duce’s February 22, 1979 audit report (Ex. 266) indicates that the plant was restarted

on a full scale during the first three months of 1978 to ascertain production capabilities while the purchase agreement between Solvent and Recochem was being renegotiated.

Finally, the evidence presented at trial shows that chlorinated benzene material was released into the environment at the Site during the early part of 1978. For example, a "Material Loss Investigation" memorandum dated January 11, 1978 indicates that "about 3,700 gallons" of chlorinated benzene material was spilled from a distillation pot on January 7, 1978 (Ex. 228). An "Employee Warning Record" indicates that on January 26, 1978, another 800 gallons of chlorinated benzene material was mistakenly pumped onto the ground (Ex. 233). In addition, "Downtime Reports" for January 3-13, 1978 indicate that a number of leaks in the facility's chlorination and distillation equipment were reported during the period of Recochem's operation of the plant (Ex. 230).

Based on this showing, I find that Recochem and Mr. Kuchar managed, directed, or conducted operations having to do with the leakage or disposal of hazardous waste at the Site during the early part of 1978, warranting the imposition of operator liability under CERCLA § 107(a)(2). It is clear from this evidence that Mr. Kuchar and other Recochem employees were actively and substantially involved in decisions regarding the handling of hazardous substances at the time of disposal or release. The fact that this operation was associated with Recochem's "due diligence inspection" prior to purchase is of no moment. Nothing in the statutory language, or in any of the cases reviewed by the court upon exhaustive research, indicates that Congress intended to allow for a "due diligence" defense to CERCLA's strict liability scheme. Instead, once the preponderance of the evidence has established that the Recochem defendants engaged in actual and substantial control over the facility's chlorinated benzene production activities, and that releases of

hazardous substances occurred during that time, CERCLA operator liability is triggered regardless of the reasons asserted for the operation.

Accordingly, I find Recochem, and Mr. Kuchar personally, liable under CERCLA § 107(a)(2) for response costs associated with their operation of the Solvent Niagara Falls facility during a period of time in the early part of 1978. *Cf. State of New York v. Shore Realty*, 759 F. 2d 1032, 1052 (2d Cir. 1985) (finding officer of corporation which owned hazardous waste site personally liable as operator).

CONCLUSION

Based on the foregoing, the court finds by a preponderance of the evidence presented at trial that third-party defendants Recochem and Joseph Kuchar are subject to Solvent's contribution claims based upon both operator liability under CERCLA § 107(a)(2) and arranger liability under CERCLA § 107(a)(3), the extent of which to be determined during the final phase of this litigation in accordance with the standards for equitable allocation of response costs pursuant to CERCLA § 113(f)(1).

So ordered.

\s\ John T. Curtin
JOHN T. CURTIN
United States District Judge

Dated: March 24, 2006

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